SECTION 5.0

Waste Management Devices and Permitted Units

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5.0 WASTE MANAGEMENT DEVICES AND PERMITTED UNITS

5.1 GENERAL

Hazardous wastes handled at the facility are managed either in containers (66264.170), tanks (66264.190), containment buildings (66264.1100), or miscellaneous units (66264.600). In addition, sediment accumulating in the facility storm water pond has on occasion been characterized as hazardous for lead, therefore; the storm water pond is included for permitting as a surface impoundment (66264.220). A general process description is provided in Section 5.1.1 and a more detailed description of the common chemical reactions during pyrometallurgical battery reclamation is presented in Section 5.1.2.

Detailed descriptions of the Waste Management Devices and Permitted Units are provided as follows:

Section 5.2	Container Storage Buildings
Section 5.3	Raw Material Preparation System (RMPS)
Section 5.4	Wastewater Treatment Plant (WWTP)
Section 5.5	Containment Buildings
Section 5.6	Furnaces and Kettles
Section 5.7	Baghouse Dust Slurry Tanks
Section 5.8	Oxidation Tanks
Section 5.9	Mobile Equipment Wash Station Sump
Section 5.10	Drop-out System
Section 5.11	Stormwater Surface Impoundment
Section 5.12	Permitted tank assessments
Section 5.13	Tank General Operation Requirements
Section 5.14	Tank Inspections
Section 5.15	Tank Replacement
Section 5.16	West Yard Truck Wash
Section 5.17	Neptune Scrubber Tank (Proposed)
Section 5.18	Ancillary Sumps (Existing and Proposed)
Section 5.19	Trailer Staging Area

Plot plans of the facility and process flow diagrams to aid in the understanding of the process description are presented on Figure 5.1 and Figure 5.2 respectively. The numbers on the figures correspond to the unit numbers presented in Attachment A-2 (Hazardous Waste Management Unit Descriptions) at the end of Section 1.0, which contain details for each HWMU operated at the facility. Tank schematics for each permitted tank are included as Attachment A (Individual Tank Schematics) at the end of this section (Section 5.0). Drawings listed in the text are located in Appendix A unless otherwise specified. Process flow diagrams for the Wastewater Treatment (WWT) system and Drop-Out System are provided on Figures 5.3 and 5.4 respectively.

This application includes information and details for proposed units and ancillary components that Exide has already submitted Interim Status modifications for, as well as, general information for possible future units that may be proposed between the date of this application and receipt of the RCRA Permit.

The proposed units and ancillary components submitted as part of the Interim Status (Class 2) modification to DTSC on May 2, 2014 (provided as Appendix MM) are as follows:

- Unit 79, Surge Tank
- Unit 81, Centrifuge No. 2
- Oxidation Tank Area Sump (Ancillary to Units 31 and 32)
- Mud Tank Area Sump 1 (Ancillary to Units 7, 8 and 9)
- Mud Tank Area Sump 2 (Ancillary to Unit 5)
- Baghouse Building Sump 3 (Ancillary to Units 31 and 32)

The proposed potential future units currently being contemplated are as follows:

- Unit 82 RMPS Acid Storage Tank
- Unit 83 Shredder
- Unit 84 Vibrating Screen
- Unit 85 Industrial Cell Extraction
- Unit 86 Industrial Cell Shredder
- Unit 88 Neptune Scrubber Tank

The proposed potential future units (Units 82 through 86 and 88) are being included in this application to ensure that the permit application review and approval process can proceed without the need to revise and resubmit. If Exide wishes to install and operate such units before issuance of the RCRA Permit, Exide must first submit and receive DTSC approval for an appropriate Interim Status modification providing final details and information. If Exide wishes to install and operate such units after issuance of the RCRA Permit, Exide must first submit and receive DTSC approval of an appropriate RCRA permit modification. Addition of some or all of these units will improve operating efficiency but does not increase the quantity of materials received for recycling or the quantity of finished lead produced by the facility.

5.1.1 General Process Description

Spent lead-acid batteries and drums of plant scrap are either directly unloaded for immediate reclamation processing or sent to the **Container Storage Buildings (Section 5.2)** for temporary storage. The initial step in the reclamation process for spent lead-acid batteries is a physical separation of battery components. At the Vernon facility this is performed in the **Raw Material Preparation System (RMPS) (Section 5.3)**.

The RMPS begins by feeding batteries into an oscillating pan feeder located near the loading dock at the south end of the RMPS building. From the oscillating pan feeder, the batteries are automatically conveyed through the RMPS crushing and screening process. A hammer mill further breaks up the batteries. The crushed pieces are separated using physical means including screening and sink/float separation based upon varying specific gravities. The resulting process intermediates are metallic lead (grids and posts, or top lead); battery case material (typically polypropylene but sometimes rubber); lead oxide/lead sulfate paste (separated from the grids during the screening process); and separator material.

Recovered acid, wash water and other facility liquids are sent to the **Wastewater Treatment System (Section 5.4)** where the recovered acid is used in the treatment process. The polypropylene is rinsed, resized, separated from the rinse liquid, blown into trailers, temporarily stored in the Trailer Staging Area and shipped for off-site reclamation. The lead oxide/lead sulfate paste is pumped to the mud tanks, dewatered and sent into the Reverb **Containment Building (Section 5.5)**. Metallic lead and separator material recovered by the RMPS is also sent to the Containment Building.

The solids from the Reverb Containment Building are processed through the rotary kiln while being sent to the **Furnaces (Section 5.6)** for lead recovery. The resulting molten lead from the Reverb Furnace is transferred to the soft lead **Receiving and Refining Kettles (Section 5.6)** while the reverb slag is transferred to the Blast Furnace for additional lead recovery. Containers of lead-bearing plant scrap, industrial battery plates/groups, reverb slag, refining dross, coke, and lime are also fed into the Blast Furnace to recover the lead. The resulting molten lead is transferred to the hard lead **Receiving and Refining Kettles (Section 5.6)**. Particulate lead is recovered from the baghouses at the **Baghouse Dust Slurry Tanks (Section 5.7)** and returned to the recycling process at the RMPS.

In addition to the primary process, Exide maintains **Oxidation Tanks (Section 5.8),** a **Mobile Equipment Wash Station Sump (Section 5.9),** a **Drop Out System (Section 5.10)** a **Surface Impoundment (Section 5.11), Permitted Tanks (Sections 5.12, 5.13, 5.14, and 5.15), a Truck Wash (Section 5.16), Ancillary Sumps (Section 5.18) and a Trailer Staging Area (Section 5.19).** Exide is currently preparing design details for a new air emission control scrubber (a.k.a. Neptune Scrubber). Concurrent with that project, Exide would replace the Neptune Scrubber Sump with a tank to contain scrubber liquid from the scrubbers. The scrubber tank (proposed Unit 88, Neptune Scrubber Tank) is expected to require permitting as a RCRA hazardous waste management unit. See Section 5.17 for more information regarding the proposed Neptune Scrubber Tank.

5.1.2 Pyrometallurigcal Reactions During Battery Reclamation

5.1.2.1 **Desulfurization**

The lead oxide/lead sulfate paste sent to the mud tanks is mixed with soda ash (Na_2CO_3) to neutralize and react with the lead sulfates and remaining acid to yield a lead carbonate paste. This paste is mechanically dewatered in a filter press and stored in the Reverb Furnace Feed Room prior to charging to the Reverb Furnace. The filtrate containing the majority of the sulfur (as sodium sulfate $NaSO_4$) from the filter press is routed to the on-site Wastewater Treatment Plant. The desulfurization process greatly reduces the generation of sulfur dioxide in the smelting (pyrometallurgical) process by removing 75 to 80 percent of the sulfur from the feed.

5.1.2.2 **Metallurgical Furnaces**

Exide operates a Reverberatory Furnace and a Blast Furnace.

Reverberatory (Reverb) Furnace

Basically, two classes of material are charged to the Reverb Furnace: lead-bearing raw material (desulfurized lead paste and metallic lead) and reductant or carbonaceous material (battery chip/separator material, and coke fines). From the Reverb Furnace Feed Room, material is conveyed via an enclosed inclined belt to a gas fired rotary kiln which further dries the feed prior to charging it to the furnace. This increases the furnace efficiency.

A Reverb Furnace using oxygen enrichment typically operates between 2,000° to 2,700° F. Oxygen enrichment is utilized in the natural gas fired burners for more efficient furnace operation.

The Reverb Furnace is a horizontally oriented furnace constructed of refractory brick with an exterior support frame. The Reverb Furnace feed is charged to the Reverb Furnace through two ram feeders at the burner end of the furnace. The heat from the burners melts the lead, decomposing the lead carbonate to lead oxide. The carbonaceous material reacts with the lead oxide, reducing it to metallic lead.

Alloying metals commonly occurring in batteries (antimony, tin, and arsenic) along with other impurities, form a floating slag layer on top of the molten lead. Because a heavy slag layer would reduce the furnace efficiency, the slag is continuously tapped off to keep the layer at roughly ½-inch thick. A thin slag layer is beneficial in that it keeps the molten lead at the surface from becoming re-oxidized. The slag from the Reverb Furnace has a high lead and alloy content and is the primary feed to the Blast Furnace. The lead tapped from the Reverb Furnace (soft lead) is conveyed via a runner (or launder) to a receiving kettle (or pot), then to a refining kettle. The kettles are used to refine the lead to meet customer specifications.

Exhaust from the Reverb Furnace is first collected in a heat exchanger. It then flows through the A-pipe, cooling loops, baghouse, and sulfur dioxide scrubber where air emissions are discharged under a South Coast Air Quality Management District (SCAQMD) permit. Flue dust from the baghouse is automatically conveyed to a slurry tank where water is added. The slurry is then pumped back to the Mud Tanks and through the reclamation process.

Blast Furnace

The classes of material charged to the Blast Furnace include lead bearing material, reductant, fluxes, and fuels.

Lead bearing material charged to the Blast Furnace includes Reverb Furnace slag, battery manufacturing plant scrap, refinery dross, industrial battery plate/groups, and any other lead-bearing feed too bulky for the Reverb Furnace. Reductant to the Blast Furnace is in the form of metallurgical grade coke. In the hearth area of the Blast Furnace, the coke acts as a fuel, providing the necessary heat. Fluxing material includes scrap drums, cast iron, lime rock, mill scale ("rust" from a steel mill), and occasionally silica. In the Blast Furnace, the metals occurring as oxides in the Reverb Furnace slag (including lead, tin, antimony, and arsenic) are all reduced to molten metallics. All other impurities are separated out in the slag layer.

Operating temperature of the Blast Furnace in the smelting zone (tuyere level) utilizing oxygen enrichment is typically between 2,200° and 2,400° F. The Blast Furnace is a vertically configured furnace and is constructed of water jacketed steel as compared to the refractory brick of a Reverb Furnace.

Blast Furnace feed at the Vernon facility is accomplished using a skip hoist, which is loaded by front-end loader at ground level and charges the material to the furnace at the top. The chemistry and metallurgy of the Blast Furnace are quite complex. The major pyrometallurgical reactions take place in the hearth zone at the tuyere level where air with oxygen enrichment is injected:

$$2C + O_2 \rightarrow 2CO$$
$$2CO + O_2 + HEAT \rightarrow 2CO_2$$
$$CO + PbO \rightarrow CO_2 + Pb$$
$$CO + Sb_2O_3 \rightarrow 2CO_2 + 2Sb$$
$$CO + SnO_2 \rightarrow 2CO_2 + Sn$$
$$CO + As_2O_3 \rightarrow 2CO_2 + 2As$$

Carbonaceous material reacts with the oxygen to produce carbon dioxide (CO_2). More reductant reacts with the CO_2 to produce carbon monoxide. The carbon monoxide reduces the metal oxides to molten metallics that are tapped from the Blast Furnace to receiving then refining kettles. The kettles are used to refine the lead to meet customer specifications.

Some lead charged to the Blast Furnace (from battery plant scrap) exists as lead sulfide. Cast iron is used to react with the PbS to yield an iron sulfide and lead. The iron sulfide forms the "matte" layer of slag.

$$Fe + PbS \rightarrow FeS + Pb$$

Silica occurs naturally in charge material to the Blast Furnace. Because of the potential to glassify and "freeze up" the furnace, iron oxide (mill scale) and calcium oxide (lime rock) are added as eutectic agents to ensure that the slag layer will stay molten within the Blast Furnace. Occasionally, to balance the slag chemistry and yield a stable slag, silica (usually in the form of sand) is added.

The exhaust gases of the Blast Furnace are handled similarly to those of the Reverb Furnace.

5.2 <u>CONTAINER STORAGE BUILDINGS</u> (22 CCR, Chapter 14, Article 9)

5.2.1 <u>Hazardous Waste Management</u>

Exide operates three container storage units which are the Central Container Storage Building (Unit 1)), West Container Storage Building #1 (Unit 2), and West Container Storage Building #2 (Unit 3).

Materials destined for recycling at the facility are spent lead acid batteries and containers of battery plant scrap. Each individual battery is considered a container, consisting of a plastic battery case that holds battery acid (diluted sulfuric acid) and lead components. Whole unbroken batteries destined for recycling are typically shipped and received as Universal Waste. Only after entering storage at the facility are the whole, undamaged spent batteries considered individual containers of hazardous waste with corrosive and lead-bearing content under 66264.170. Containers of battery plant scrap (primarily solid, lead-bearing material and lead-acid paste) received from offsite are typically DOT steel drums or bins and are typically the same containers in which the corrosive and lead-bearing material were transported to the facility. Containers of battery plant scrap are regulated pursuant to 66264.1

Spent industrial cell batteries are also received at the facility. An industrial cell battery consists of typically 4 to 8 cells within a larger steel case. The cells are equivalent to an individual battery, except that the battery terminals on each cell are connected to each other to produce a battery with greater power. The steel cases cannot be introduced into the RMPS process; therefore, the cells are lifted out of the steel case within the Central Container Storage Building (Unit 1). The plastic-cased batteries are then transferred to the RMPS. The steel case is crushed and utilized as flux in the furnace.

5.2.2 Use and Management of Containers (66264.171)

Shipments of batteries and containers of waste are inspected at the time they enter the site and while they are still in the trucks. Containers are inspected a second time when they are unloaded from the trucks. When a leaking or unacceptable container is found, the leaking container is removed and transferred immediately to the reclamation process. Batteries go directly to the RMPS and containers of plant scrap go to the permitted Blast Furnace Feed Room. If immediate processing is not an option, the leaking containers are placed in leak-proof containers and sent to the container storage areas until the material can enter the reclamation process.

5.2.3 Compatibility of Waste with Containers (66264.172)

The battery cases are constructed of polypropylene and other plastics, or, on occasion, ebonite rubber, both of which are highly corrosion-resistant material. The compatibility of battery cases with their contents is clear since they are designed to safely contain the battery components during the service life of the battery. Battery plant scrap and other lead-bearing material are generally received at the facility in 55-gallon steel drums or totes. These containers are supplied by the plant scrap generators who ship this material as a hazardous waste accompanied by a hazardous waste manifest. As such, these containers must meet applicable DOT shipping requirements for the transportation of hazardous waste. Such drums may safely contain any of the material listed in Section 4.0 as acceptable material including reject plates, emission control dust, drosses, and sludges. It is also common for suppliers (e.g., battery manufacturing plants) to line the steel drums or totes, used for transporting certain classes of plant scrap, with polyethylene bags to minimize the chance of container corrosion.

5.2.4 Management of Containers (66.264.173)

Containers received at the facility are either sent for immediate processing or sent for temporary storage. The unloading dock for spent lead-acid batteries and plant scrap destined for immediate processing is located at the south end of the RMPS Building. The dock has two designated unloading areas which are further described in Section 5.2.7. The trailers are unloaded using forklifts that transport the pallets of batteries directly to either the Oscillating Pan Feeder (Unit 70) or the Container Storage Areas (Units 1, 2 and 3). The containers of plant scrap go to the permitted Blast Furnace Feed Room (Unit 34). Containers that are not immediately processed are unloaded from the trailers. A forklift is used to remove the pallets from the trailers and the containers are placed into the permitted Container Storage Areas (Units 1, 2 and 3).

Although not intentionally scheduled, trailers of batteries and/or containerized plant scrap are sometimes received at night or on a weekend and may be temporarily stored in the permitted Central Container Storage Building, or in the Trailer Staging Area south of the wastewater treatment plant until the next shift with qualified personnel for unloading.

Batteries arrive stacked on pallets up to 3 to 4 automotive batteries high (approximately 24 to 32 inches high). The average pallet is 48 inches by 40 inches and can hold up to 104 batteries (26/layer) although because of varying sizes of the batteries the typical pallets holds between 75 and 100 batteries. The batteries are secured to the pallets with plastic wrapping. Drums are not stacked higher than one level per pallet and the drums are secured with plastic wrapping or strapping. Containers are labeled as to their contents by the suppliers using either a hazardous waste shipping label or other designation. Empty steel drums are crushed and fed to the Blast Furnace as a flux, utilizing their iron content and empty totes are returned to the generator that shipped them. Any containers received open are either rejected or fitted with covers prior to storage.

As required by HSC 25200.19(c), containers are transported directly from the transport vehicle to the intended unit, and all loading and unloading is conducted within the boundary of the facility. The Container Storage Areas and Blast Furnace Feed Room are adequately sized to receive the unloaded containers. A description of the containment features at the unloading areas are provided in Sections 5.2.6 and 5.2.

5.2.5 <u>Inspections (66264.174)</u>

Within the Container Storage Areas, the pallets of containers are managed in rows. A minimum of 24-inches of aisle space is maintained along the perimeter walls and between each row of pallets. The rows run the length of the buildings. A figure showing aisle layout is provided in Appendix A. Pallets are not stacked higher than two levels. The 24-inch aisle space is maintained to allow inspection for leaking containers. 24-inch wide aisles are adequate for personnel to walk unobstructed between rows of pallets and allow for inspection of each pallet. Inspections are performed on a weekly basis and documented on the Facility Inspection Logs provided in Appendix L.

When a leaking container is found, a hand-operated jack is used to shift pallets from a row into the adjacent aisle, creating a temporary 48-inch (shifting one row) or 72-inch (shifting two rows) wide aisle for equipment access to the leaking pallet. A forklift or hand-operated jack is then used to remove the pallet holding the leaking container and the remaining pallets are reconfigured to the required rows with 24-inch aisles. The temporary 48-inch or 72-inch wide aisle would also allow for the unobstructed movement of fire protection equipment, spill control equipment and decontamination equipment. The entire pallet containing the leaking container is then transferred directly to the reclamation process. Batteries go directly to the RMPS and containers of plant scrap go to the permitted Blast Furnace Feed Room (Unit 34). If immediate processing is not an option, the leaking containers will be placed in leak-proof containers and returned to the building until the material can enter the reclamation process.

5.2.6 Containment (66264.175)

The facility utilizes three (3) Container Storage Areas for the storage of batteries and containers of lead bearing materials. Each of the Container Storage Areas is roofed and has an epoxy coated concrete floor that is sloped to collection sumps connected to a central sump located near the cooling tower that is equipped with a manually activated pump to remove accumulated liquid. The designations of the Container Storage Areas, as shown on the Facility Plot Plan (Figure 5-1) and referred to in this permit application are as follows:

Unit 1 – Central Container Storage Building
Unit 2 – West Container Storage Building #1
Unit 3 – West Container Storage Building #2

Detailed information regarding the materials of construction, size and capacity for each unit can be found in Section 1.0 Attachment A-2. These three Container Storage Buildings are located in the South Yard as shown on Figure 5.1 and listed on Attachment A-2 found in Section 1.0.

The Container Storage Buildings measure 80 feet by 150 feet (Central Container Storage Building (Unit 1)) minus the footprint of the Drop Out System, 34 feet by 80 feet (West Container Storage Building #1 (Unit 2)), and 34 feet by 38 feet (West Container Storage Building #2 (Unit 3)). The stormwater drop out system occupies an area of approximately 19 feet by 71.5 feet in the southwest corner of Unit 1 which reduces the area usable for container storage by 2,100 sf. The Container Storage Buildings have a storage capacity on the order of 99,840 batteries and 210 55-gallon drums, 24,960 batteries and 48 drums, and 14,560 batteries and 24 drums for Units 1, 2 and 3 respectively. The maximum liquid storage volume (conservatively assuming 1 gallon of liquid per battery) is 99,840 gallons, 24,960 gallons and 14,560 gallons for Units 1, 2 and 3 respectively. The drums contain dry materials only.

Each of the permitted Container Storage Buildings consist of an eight-inch thick reinforced concrete slab, coated with an acid resistant epoxy resin and sloped to stainless steel lined collection drains. These sumps drain by gravity through underground piping encased in concrete to a collection sump near the Cooling Tower Building (Acid Collection Sump 3). The collection drains in the Container Storage Buildings, concrete encased piping and collection sump near the Cooling Tower Building are considered to be ancillary to the secondary containment for the Container Storage Buildings (Units 1, 2 and 3). The ancillary sumps, Acid Collection Sumps 1 through 6, are provided on Figure 5.5 and Table 5.1. Acid Collection Sumps 1 and 2 are located at Unit 1. Acid Collection Sumps 5 and 6 are located at Unit 2. Acid Collection Sump 4 is located at Unit 3. Acid Collection Sump 3 is located near the Cooling Tower Building. Each sump is 3 feet in diameter by 3 feet deep and 25.25 inches in diameter by 8 inches deep as shown on Drawing 390-615-302 in Appendix A. Each sump is constructed of concrete with stainless steel liner. The capacity of each sump is 175 gallons. Acid Collection Sumps 1, 2, 4, 5, and 6 drain to Acid Collection Sump 3.

Acid Collection Sump 3, the collection sump near the Cooling Tower Building, is not connected to the stormwater management system. Drawing 39-615-301 in Appendix A shows the layout of the sumps, piping and collection sump at the Cooling Tower Building. A pump at Acid Collection Sump 3 transfers collected liquid via above ground piping to the Water Softener Building Sump, and then to the on-site Wastewater Treatment Plant. The Water Softener Building Sump is considered to be ancillary to Units 52 and 53.

The Buildings are fitted with canopy roofs and partial height walls on the two sides at Unit 1 and three sides at Units 2 and 3 to provide protection from precipitation. The collected liquid is wash down water from regular facility cleaning and dust suppression operations, and leaks or spills from the containers managed in the Container Storage Area if they are damaged. The design of the permitted Central Container Storage Building is presented in Drawing 39-615-301, which shows the floor slope, collection sumps, and specification of slab thickness. Similar information for the two smaller permitted West Container Storage Buildings (Units 2 and 3) is presented in Drawing 39-615-306. Foundation details and sump cross sections are given in Drawing 39-615-302; typical canopy sections are shown in Drawing 39-615-307. The secondary containment provided by each Container Storage Building is 13,266 gals, 3,391 gals, and 1,611 gallons, respectively; satisfying the secondary containment requirements for 10% of the total liquid volume. Secondary containment calculations are provided in Appendix G.

5.2.7 <u>Unloading Dock</u>

The unloading dock for spent lead-acid batteries and plant scrap intended for immediate processing is located on the south end of the RMPS Building. The unloading dock is approximately 28.5 feet wide and 87 feet long. The dock has two designated unloading areas and is used for incoming material that can be immediately processed. The trailers are unloaded using forklifts that transport the pallets to either the conveyor belt feeding the Oscillating Pan Feeder (Unit 70) or to the Blast Furnace Feed Room (plant scrap). The general layout of the unloading dock (prior to enclosure and construction of the Reverb Furnace Containment Building) is presented on Drawing 39-615-3 An acid-resistant epoxy coats the unloading dock concrete floor to protect the floor from accidental spills. The unloading dock platform is enclosed to prevent precipitation from entering the area and to prevent the release of material off the platform in the event a container is damaged or spilled during unloading. In the event a battery is damaged causing leakage (because of their limited size a battery typically contains <1 gallon of electrolyte) or a drum of plant scrap spills (plant scrap does not contain free liquid) during unloading, the spilled materials are removed using a flat shovel and broom and fed into the Oscillating Pan Feeder (Unit 70). Spilled electrolyte is either cleaned up with absorbent material (such as cat litter or speedy dry) or washed into a drain located in the center of the floor that conveys wash-down water to the Battery Dump Bin Sump (Unit

Plant scrap is also received at the Coke Unloading Dock and immediately transferred to the feed rooms. Because plant scrap is dry, no containment is required for this unloading dock. The Coke Unloading Dock is approximately 42.9 feet by 15 feet and can accommodate one truck.

Batteries and/or plant scrap that are not immediately processed are pulled beneath the Container Storage Area canopy roofs and are unloaded from flatbed trailers that have removable side rails. The Central Container Storage Area can accommodate eight trucks if the storage area is not full with batteries. If the Central Container Storage Area is at capacity with stored batteries, then no trucks will fit within the area. The containers being unloaded from the truck is a portion of the allowable volume of waste stored; therefore, the secondary containment is adequate to manage 10% of the stored waste and waste being unloaded. Secondary containment is discussed in Section 5.2.6. A forklift is used to remove the pallets from the trailers and place the containers into the permitted Container Storage Buildings (Units 1, 2 and 3). These unloading operations occur within the shelter of the Building where the pallets are to be placed. Therefore, the unloading operation is protected from precipitation, and any incidental spillage is collected in the drainage system associated with the Building. During excess capacity, pallets of batteries and plant scrap are unloaded at the Blue Lead Warehouse unloading dock and transferred to the permitted Container Storage Buildings. The Blue Lead Warehouse unloading dock is approximately 29 feet by 103 feet, and can accommodate two trucks. A typical 80,000 pound load of batteries contains approximately 2,225 batteries (≈ 80,000 lbs/36 lbs/battery) on 22 to 30 pallets. Applying the requirement that secondary containment equals the largest container or 10% of the total liquid volume, based on 1 gallon of electrolyte per battery, one pallet (approximately 100 batteries) would require 10 gallons of secondary containment and an entire truck load of batteries would require 223 gallons of secondary containment. A small spill would typically be cleaned up with absorbent material (such as cat litter or speedy dry). A larger spill that cannot be controlled with cat litter or speedy dry would flow over the ground surface into Manhole K of the stormwater management system where it would be contained by the stormwater management system.

Sumps and drains at the RMPS unloading dock are inspected during inspection of the Pan Feeder Area.

Traffic patterns and loading/unloading docks are shown on Figure 2.2.

5.3 RAW MATERIAL PREPARATION SYSTEM (RMPS)

The proprietary and state-of-the-art RMPS at the facility has been designed and constructed to receive spent lead-acid batteries either on pallets or in bins from the permitted Container Storage Buildings or directly from the trailers. A detailed material flow diagram of the RMPS is presented on design drawing DM-001, provided in Appendix A. Please note that the referenced drawing refers to the RMPS as the "ABRP". This detailed presentation of the RMPS area, when coupled with the overall facility block flow diagram presented in Section 4.0 and the process flow diagram (Figure 5.2) gives a complete view of the hazardous waste processing and handling units of the facility. The RMPS includes a total of 14 tanks (12 existing, 1 proposed in the May 2, 2014 Class 2 Interim Status modification and 1 proposed potential future unit) and 12 miscellaneous units (7 existing, 1 proposed in the May 2, 2014 Class 2 Interim Status modification and 4 proposed potential future units). The WWTP Filter Press (Unit 44), although located in the RMPS building is utilized for the WWTP Operations and therefore included in the WWTP descriptions). The RMPS can be separated into 3 primary activities as noted below. Please note that the physical location of the units are grouped differently.

> Material Introduction (3-Tanks (Units 5, 6 and 82), 2- Miscellaneous Units (Units 70 and 85))
> Component Separation (7-Tanks (Units 10, 12 through 14, 41, 66 and 67) and 9 Miscellaneous Units (Units 40, 42, 43, 68, 80, 81, 83, 84 and 86))
> Desulfurization (4-Tanks (7 through 9 and 79) and 1 Miscellaneous Unit (Unit 45))

Each tank and miscellaneous unit associated with RMPS is listed on Attachment A-2 in Section 1.0.

The RMPS Building consists of four areas: 1) the unloading dock discussed in Section 5.2.7; 2) the narrow section along the west side of the Reverb Furnace Feed Room; 3) the main RMPS area; and 4) the enclosed plastic trailer loading dock. The section along the west side of the Reverb Furnace Feed Room is approximately 20 feet wide and 112 feet long. A portion of this area has a lower level which includes Unit 5, Battery Dump Bin Sump, and Unit 70, Oscillating Pan Feeder. The main RMPS area is approximately 80 feet wide and 94 feet long. The section along the west side of the Reverb Furnace Feed Room and main RMPS area are shown on Drawings DM-127 and DM-128 in Appendix A. The enclosed plastic trailer loading dock is approximately 28 feet wide and 50 feet long as shown on Drawing RMS 004 in Appendix A.

5.3.1 Material Introduction

Three regulated tanks (66264.190) (two existing and one proposed) and two regulated miscellaneous units (66264.600) (one existing and one proposed) are used in the material introduction process. The existing permitted tanks are the Battery Dump Bin Sump (Unit 5) and RMPS Floor Sump (Unit 6). The proposed tank is the RMPS Acid Storage Tank (Unit 82). The existing permitted miscellaneous unit is the Oscillating Pan Feeder (Unit 70). The proposed miscellaneous unit is the Industrial Cell Extraction (Unit 85).

5.3.1.1 **Hazardous Waste Management**

The material introduction is conducted by the Battery Dump Bin Sump (Unit 5), RMPS Floor Sump (Unit 6), Oscillating Pan Feeder (Unit 70), proposed RMPS Acid Storage Tank (Unit 82), and proposed Industrial Cell Extraction (Unit 85). The Battery Dump Bin Sump, RMPS Floor

Sump, and proposed RMPS Acid Storage Tank are regulated as Tanks (66264.190). The Oscillating Pan Feeder and proposed Industrial Cell Extraction are regulated as Miscellaneous Units (66264.600).

Batteries are introduced into the RMPS through the Oscillating Pan Feeder near the loading docks at the south end of the RMPS building. The Battery Dump Bin Sump (Unit 5) is located under the Oscillating Pan Feeder (Unit 70). The Battery Dump Bin Sump collects the acid draining from the lead-acid batteries when they are cracked in the Oscillating Pan Feeder and pumps it to the Paste Thickening Unit (Unit 12) and the RMPS Floor Sump (Unit 6). The RMPS Floor Sump (Unit 6) is located near the battery crushing and screening operations of the RMPS and collects incidental spillage from the RMPS process and floor wash. The collected liquid from the permitted RMPS Floor Sump (Unit 6) is pumped to the permitted Mud Tanks (Units 7, 8 and 9).

Following installation of the proposed RMPS Acid Storage Tank (Unit 82), acid draining from the lead-acid batteries in the Oscillating Pan Feeder will be collected in the RMPS Acid Storage Tank (Unit 82) prior to transfer to Battery Dump Bin Sump (Unit 5) or Clarifying Acid Filter Press (Unit 68).

The proposed Industrial Cell Extraction (Unit 85) will consist of small crane or overhead hoist to lift the individual cells from the exterior steel case, and place the individual cells on pallets before transfer to the proposed Industrial Cell Shredder (Unit 86).

5.3.1.2 **Material Introduction Tanks**

The permitted Battery Dump Bin Sump (Unit 5) is located beneath the oscillating pan feeder that initially receives the spent batteries from pallet unloading. The permitted Battery Dump Bin Sump is oblong in shape and roughly measures 4 feet 2 inches wide by 8 feet 3.5 inches long by 5 feet 7 inches deep and has a maximum inventory of 1,287 gallons and a gross capacity of 1,287 gallons. This sump is labeled the "acid sump" at the lower left of the DM-001 flow diagram. Its physical location is indicated on Drawing DM-128, Section Q-Q, as item 110-29201 between columns 9.8 and 10.8. This original sump was replaced in 1995 with a new double-walled stainless steel sump. The tank schematic for the permitted Battery Dump Bin Sump is presented on Attachment A at the end of this section. The Tank Assessment Report for Unit 5, including exact measurements, is provided in Appendix H.

This permitted sump collects dilute sulfuric acid (battery electrolyte) having a specific gravity of about 1.17 and a pH less than 1.0, and it operates at atmospheric pressure. The stainless steel, double-walled unit is highly corrosion resistant. The permitted Battery Dump Bin Sump handles about 25 to 50 gallons per minute of waste acid. The acid from the batteries is collected in the sump and transferred to either the RMPS Sump (Unit 6) or to the Paste Thickening Unit (Unit 12).

The permitted RMPS Floor Sump (Unit 6) is located near the battery crushing and screening operations of the RMPS and has a maximum inventory of 1,463 gallons and a gross capacity of 1,463 gallons. About 50 to 100 gallons per minute of this solution is pumped intermittently from the sump to the permitted Mud Tanks for neutralization in the desulfurization process. This permitted sump is labeled "ABRP Floor Sump" at the lower left of Drawing DM-001. Its physical location is described on Drawing DM-130, Section T-T, between columns J and K. The original sump was replaced in 1995 with a new double-walled stainless steel tank is oblong and measures approximately 5 feet by 8 feet 10.75 inches by 5 feet. The liquid collected in this permitted RMPS Floor Sump typically has a specific gravity of about 1.18 and a pH of 8.0, and it operates at atmospheric pressure. The stainless steel double-walled unit is highly corrosion resistant. The Tank Assessment Report for Unit 6, including exact dimensions, is provided in Appendix H.

Proposed RMPS Acid Storage Tank (Unit 82) is proposed to collect acid draining from the lead-acid batteries in the Oscillating Pan Feeder prior to transfer to Battery Dump Bin Sump (Unit 5) or Clarifying Acid Filter Press (Unit 68). The tank will be located near the Oscillating Pan Feeder. The approximate location is provided on Figure 5.1. The dilute sulfuric acid (battery electrolyte) has a specific gravity of about 1.17 and a pH less than 1.0. The tank will operate at atmospheric pressure. The tank has not yet been designed, but is expected to have a permitted capacity of approximately 1,400 gallons. *Additional information/detail must be submitted for DTSC approval prior to installatio*

5.3.1.3 **Material Introduction Miscellaneous Unit**

The Oscillating Pan Feeder (Unit 70) is located near the loading dock where incoming batteries are delivered to the building containing the RMPS. The Oscillating Pan Feeder is constructed from stainless steel and measures 22 ft long, 21 ft wide and 10 ft high. Batteries are fed into the unit where the batteries are allowed to crack open and drain dilute sulfuric acid to the under lying Battery Dump Bin Sump (Unit 5) or, once installed, proposed RMPS Acid Storage Tank (Unit 82). The under lying flo constructed with concrete and coated with acid-resistant epoxy coating.

The Oscillating Pan Feeder (Unit 70) may be replaced with a similar but smaller pan feeder which transfers batteries into a proposed shredder and a proposed vibrating screen prior to being conveyed to the Hammer Mill (Unit 40). The smaller pan feeder would be sized to accommodate individual pallets of batteries, in lieu of the multiple pallets which the existing Oscillating Pan Feeder is sized for. This change would make the proposed pan feeder size consistent with current operations. *Additional information/detail must be submitted for DTSC approval prior to replacemer*

The location of proposed Industrial Cell Extraction (Unit 85) has not yet been determined, but will be located within RMPS. An approximate/tentative location is provided on Figure 5.1. The proposed Industrial Cell Extraction will consist of approximately 1-ton crane or hoist equipment to remove individual cells from the exterior case, and place the individual cells on pallets before transfer to the proposed Industrial Cell Shredder (Unit 86). *Additional information/detail must be submitted for DTSC approval prior to installatio*

5.3.2 Component Separation

Seven regulated tanks (66264.190) (all existing) and nine regulated miscellaneous units (66264.600) (five existing and four proposed) are used in the component separation process. The permitted tanks associated with component separation consist of the Paste Thickening Unit (a.k.a. Santa Maria, Unit 12), Acid Overflow Tank A (Unit 66), Waste Acid Circulation Tank (Unit 41), the Sink/Float Separator (Unit 13), Recycle Tank (Unit 14), Acid Overflow Tank B (Unit 67) and the South Acid Storage Tank (Unit 10). The permitted Miscellaneous Units include the Hammer Mill (Unit 40), the two permitted Elutriation Columns (East and West, Units 42 and 43), the Clarifying Acid Filter Press (Unit 68), Plastic Centrifuge #1 (Unit 80), proposed Plastic Centrifuge #2 (Unit 81), proposed Shredder (Unit 83), proposed Vibrating Screen (Unit 84), and proposed Industrial Cell Shredder (Unit 86).

5.3.2.1 **Hazardous Waste Management**

After being introduced to the RMPS System through the Oscillating Pan Feeder, the batteries proceed via conveyor to the Hammer Mill. The batteries are crushed by the permitted Hammer Mill (Unit 40) so the battery components can be separated. The crushed components are dropped directly onto a vibratory washing scree The screen effectively washes the solid crushed components freeing the lead paste (lead oxide and lead sulfat

Proposed units may be installed to allow for batteries from the Oscillating Pan Feeder to be cracked open in the proposed Shredder (Unit 83). The batteries would then go across the proposed Vibrating Screen (Unit 84), and then the drained and partially shredded batteries would be conveyed to the Hammer Mill (Unit 40). These changes are proposed to allow separation of the acid/electrolyte before the battery reaches the existing Hammer Mill and reduce the amount of acid/electrolyte generated in the Hammer Mill and reduce the amount of lead sulfate and soda ash usag *Additional information/detail must be submitted for DTSC approval prior to installation.*

Batteries from the proposed Industrial Cell Extraction (Unit 85) would be transferred to the proposed Industrial Cell Shredder (Unit 86) to open the batteries prior to or in parallel to processing in the Hammer Mill (Unit 40). The process flow will integrate the Industrial Cell Shredder (Unit 86) with existing acid collection and plastic separation systems. *Additional information/detail must be submitted for DTSC approval prior to installation.*

The acid and paste are allowed to pass through the screen and are collected in the permitted Paste Thickening Unit (a.k.a. Santa Maria, Unit 12) where the solids are allowed to settle. The settled solids are transferred to the permitted Mud Tanks (Units 7, 8 and 9) for desulfurization (See Section 5.3.3). The overflow from the permitted Paste Thickening Unit is stored in the permitted Acid Overflow Tank A (Unit 66) where it is used as a washing liquid on the vibratory washing screen. Excess acid from the Acid Overflow Tank A overflows into the Waste Acid Circulation Tank (Unit 41) for additional solids removal. Any solids settled in the Acid Overflow Tank are discharged to the RMPS Floor Sump (Unit

The Waste Acid Circulation Tank (Unit 41) serves as a solids removal tank that separates plastic and other debris from the acid. Overflow acid from the Waste Acid Circulation Tank is discharged to the South Acid Storage Tank (Unit 10) located in Desulfurization Row. Clarified acid from the South Acid Storage Tank (Unit 10) is transferred to WWTP Recycled Acid Tank (Unit 76), WWTP Acid Storage Tank (Unit 63), Equalization Tank 1 (Unit 52) and Equalization Tank 2 (Unit 53) for use during wastewater treatment. The Acid Overflow Tank B (Unit 67) is currently inactive.

The Clarifying Acid Filter Press (Unit 68) is used to remove solids from the acid prior to use in the Wastewater Treatment Plant. Filtered acid from the filter press is pumped to the South Acid Storage Tank (Unit 10) located in Desulfurization Row.

The solid components from the vibratory washing screen pass to the East Elutriation column (Unit 42) and West Elutriation Column (Unit 43) (permitted as Miscellaneous Units), which separate the grid metal from the battery chips. Modern automotive battery cases are almost exclusively polypropylene, although batteries with rubber cases still appear in the recycling stream. The solids are fed into the top of the column while overflow of sulfuric acid from the Recycle Tank (Unit 14) is pumped through the column from the bottom to produce a hydrosieve. (Note: The hydrosieve is not a physical structure, but rather a particle separation process created by passing the solid and liquid streams in opposite directions.) The lead metal sinks to the bottom while the polypropylene and battery chips float to the top of the column. The grid metal recovered in the elutriation columns is transferred via a conveyor to the permitted Reverb Furnace Feed Room (Unit 33) for storage prior to processing for lead recovery.

The battery chips removed from the elutriation columns are transferred to the Sink/Float Separator (Unit 13). The Sink/Float Separator (Unit 13 (permitted as a tank)) separates and washes the battery chips and acid. The acid from the Sink/Float Separator is pumped to Recycle Tank (Unit 14), which returns acid to the Elutriation Columns.

The plastic and rubber from the Sink/Float separator, managed as hazardous waste, is resized and then transferred to Plastic Centrifuge #1 (Unit 80) or proposed Plastic Centrifuge #2 (Unit 81). The centrifuges are operated in parallel. The centrifuges physically separate the plastic from the rinse water. The centrifuges do not use heat to dry the plastic. The separated plastic is transferred into trailers for temporary storage in the Trailer Storage Area (Unit 103) prior to off-site recycling, and the metallic lead and separator material/battery chips (not removed by the Sink/Float Separator) are transferred to the permitted Reverb Furnace Feed Room (Unit 33). The separated rinse water is transferred to the RMPS Floor Sump (Unit 6

5.3.2.2 **Component Separation - Tanks**

The permitted tanks associated with component separation consist of the Paste Thickening Unit (a.k.a. Santa Maria, Unit 12), Acid Overflow Tank A (Unit 66), Waste Acid Circulation Tank (Unit 41), the Sink/Float Separator (Unit 13), Recycle Tank (Unit 14), Acid Overflow Tank B (Unit 67) and the South Acid Storage Tank (Unit 10).

<u>Tank Descriptions</u>

<u>The Paste Thickening Unit (a.k.a. Santa Maria, Unit 12)</u> is constructed of stainless steel, has a maximum inventory of 21,768 gallons and a gross capacity of 23,954 gallons, and a maximum treatment rate of 310,000 gallons per da The Paste Thickening Unit is irregular in shape but measures approximately 34 feet 4 3/8 inches in length, 8 feet 2 inches in width, 12 feet 10 inches in height. Unit 12 is being reconstructed at the time this permit is being finalized, and a tank certification for the reconstructued unit will be finalized before the tank is re-activate As implied by the name, the Paste Thickening Unit allows the lead paste slurry to settle and gravity thicken. The thickened paste is removed from the unit by an internal chain scraper conveyor to the permitted Mud Tanks for desulfurization. Typically, the thickened paste contains residual moisture in the range of 30 to 35 percent by weig The tank schematic for the permitted Paste Thickening Unit is presented on Attachment 5.3.

<u>Acid Overflow Tank A (Unit 66)</u> is a cylindrical (7 ft-11 in in diameter) coned-bottom polyethylene tank with a maximum inventory of 2,584 gallons and gross capacity of 2,768 gallons. The general configuration of the tank measures 7 feet 11 inches in diameter with a height of 8 feet 9 inches. The tank schematic for the permitted Acid Overflow Tank A is presented on Attachment 5.4. The Tank Assessment Report for Unit 66 is provided in Appendix

<u>Waste Acid Circulation Tank (Unit 41)</u> is rectangular (approximately 4 ft wide, 4 ft long) with variable heig ft 6 inches to 6 ft high) stainless steel tank that receives process overflow from the Acid Overflow Tank A. The tank has a maximum inventory and gross capacity of 419 gallo The tank is equipped with a wire mesh at the top to remove plastics. The wire mesh is located within the tank. Acid passes through the wire mesh to remove battery chips and other debri efore being pumped to the South Acid Storage Tank (Unit 10) located in the Desulfurization Area. The tank schematic for the permitted Waste Acid Circulation Tank is presented on Attachment 5.5. The Tank Assessment Report for Tank 41 is provided in Appendix H.

Sink/Float Separator (Unit 13) is a rectangular stainless steel tank approximately 8 feet wide, 28 f eet-4.5625 inches long and up to 6 feet 3.375 inches high and a 6 inch operating freeboard. The permitted Sink/Float Separator has a maximum inventory and gross capacity of 5,808 gallons and a maximum treatment capacity of 310,000 gallons per day. The Tank Schematic is shown on Attachment 5.7. Overflow, spillage, leakage from the Sink/Float Separator accumulates on the floor of the RMPS Separation Area and drains to the RMPS Floor Sump (Unit 6 The Tank Assessment Report for Tank 13 is provided in Appendix H.

Recycle Tank (Unit 14) is a rectangular stainless steel tank approximately 17 feet 10 inches long, and 7 feet 4.685 inches wide with variable depths from 0 to 9 ft 1 inch and an operating freeboard of 16 inches. The tank maximum inventory and gross capacity is 3,635 gallons. The Tank Schematic is shown on Attachment 5.8. The Tank Assessment Report for Tank 14 is provided in Appendix H

Acid Overflow Tank B (Unit 67) is a cylindrical (8 feet-1½inch in diameter) coned bottom polyethylene tank with a maximum inventory of 2,850 gallons and gross capacity of 3,044 gallons. The tank schematic for the permitted Acid Overflow Tank B is presented on Attachment 5.9. Acid Overflow Tank B (Unit 67) is inactive. The Tank Assessment Report for Tank 67 is provided in Appendix H

South Acid Storage Tank (Unit 10) is a vertical polythylene tank where clarified acid is temporarily stored before being used in the on-site Wastewater Treatment Plant for pH adjustment. The tank is 13 feet 9 inches in diameter and 16 feet 3 ¾ inches high. The tank has a maximum inventory of 14,055 gallons, and a gross capacity of 18,104 gallons. The tank schematic for the permitted South Acid Storage Tank is presented on Attachment 5.6. The Tank Assessment Report for Tank 10 is provided in Appendix H

5.3.2.3 **Component Separation - Miscellaneous Units**

The permitted Miscellaneous Units associated with component separation consist of the Hammer Mill (Unit 40), East and West Elutriation Columns (Units 42 and 43), the Clarifying Acid Filter Press (Unit 68), Plastic Centrifuge #1 (Unit 80), proposed Plastic Centrifuge #2 (Unit 81), proposed Shredder (Unit 83), proposed Vibrating Screen (Unit 84), and proposed Industrial Cell Shredder (Unit 86).

Miscellaneous Unit Descriptions

Hammer Mill (Unit 40) is located above the Paste Thickening Unit (Unit 12). The Hammer Mill receives batteries via conveyor from, the Oscillating Pan Feeder (Unit 70). The Hammer Mill (including motor) is approximately 66.5 inches long, 89.5 inches wide and 39 inches high. The Hammer Mill housing is made from stainless steel and has a capacity of processing 53 tons per day.

East and West Elutriation Columns (Units 42 and 43) are approximately 9 feet high vertical stainless steel tubular structures. The columns utilize up flowing sulfuric acid from the Recycle Tank (Unit 14) to separate metallic lead from plastic battery components. The columns are approximately 1 feet 9 inches in diameter at the bottom to 2 feet 3 inches at the top. The Elutriation Columns have a combined maximum process capacity of 310,000 gallons per day. The metallic lead settles to the bottom and is transferred to the Reverb Furnace Feed Room (Unit 33) via conveyor to await further processing. The plastic is sent to the Sink/Float Separator (Unit 13). Any incidental spillage and leakage from the elutriation column operation accumulates on the floor of the RMPS Separation Area and drains to the RMPS Floor Sump (Unit 6). The RMPS floor is concrete with acid resistant epoxy coating.

Clarifying Acid Filter Press (Unit 68) is a cast iron (painted with acid resistant paint) plate and frame style filter press used to remove solids from recovered acid, prior to being reused in the wastewater treatment plant. Unit 68 is approximately 6 feet long, 31 inches high and 31 inches wide with a filtering capacity of 1,531 sf. The recovered solids from the filter presses are stockpiled in the permitted Reverb Furnace Feed Room (Unit 33) for subsequent processing. The maximum daily capacity of the Clarifying Acid Filter Press is 144,000 gallons. Overflow, spillage, leakage from the filter press operation accumulates on the floor of the RMPS Separation Area and drains to the RMPS Floor Sump (Unit 6). The RMPS floor is concrete with acid resistant epoxy coating.

Shredder (Unit 83) is a proposed shredder. The Shredder receives batteries from the Oscillating Pan Feeder (Unit 70). Opened batteries would be transferred to the proposed Vibrating Screen (Unit 84). The shredder has not yet been designed. An approximate location is provided on Figure 5.1. *Additional information/detail must be submitted for DTSC approval prior to installation.*

Vibrating Screen (Unit 84) is a proposed vibrating screen. The Vibrating Screen receives cracked batteries from the Shredder, and transfers the drained and partially shredded batteries to the Hammer Mill (Unit 40). The Vibrating Screen has not yet been designed. An approximate location is provided on Figure 5.1. *Additional information/detail must be submitted for DTSC approval prior to installation.*

Industrial Cell Shredder (Unit 86) is a shredder for industrial cells from the Industrial Cell Extraction (Unit 85). The Industrial Cell Shredder opens batteries prior to or in parallel to processing in the Hammer Mill (Unit 40). The Industrial Cell Shredder has not yet been designed and is expected to have a treatment rate of 10 tons per hour. An approximate location is provided on Figure 5.1. *Additional information/detail must be submitted for DTSC approval prior to installation.*

Plastic Centrifuge #1 (Unit 80) is a stainless steel centrifuge used to separate plastic and wash water. Unit 80 is 8 feet 4 inches by 6 feet 4 inches by 11 feet 3 inches high with a treatment rate of 8,000 pounds per hour. The separated plastics are transferred into trailers for transport for off-site recycling. The separated rinse water is transferred to the RMPS Floor Sump (Unit 6). The location of Unit 80 is provided on Figure 5.1. The centrifuge was replaced in approximately December 2013. A drawing for the centrifuge is provided in Appendix A. The location of Plastic Centrifuge #1 is provided on Drawing DT-104 dated July 1999 in Appendix GG.

Proposed Plastic Centrifuge #2 (Unit 81) is a proposed stainless steel centrifuge used to separate plastic and wash water. Unit 81 will be 8 feet 4 inches by 6 feet 4 inches by 11 feet 3 inches high with a treatment rate of 6,000 to 7,000 pounds per hour. The separated plastics are transferred into trailers for transport for off-site recycling. The separated rinse water is transferred to the RMPS Floor Sump (Unit 6). The Class 2 Permit Modification for the proposed Plastic Centrifuge #2, including drawings, is provided in Appendix MM. An approximate location is provided on Figure 5.1.

5.3.3 Secondary Containment for RMPS Area

Primary containment of the managed liquids is provided by the tanks and ancillary equipment. Secondary containment for the aforementioned tanks and miscellaneous units in the main RMPS building is provided by the concrete floors and walls/curb of the main RMPS building. The RMPS concrete floors and wall/curb are sealed with an acid resistant coating. The secondary containment portion of RMPS is approximately 80 feet long by 94 feet wide. The concrete floors are compatible with the physical and chemical characteristics of the managed liquids that could be leaked or spilled in the area. Releases from the regulated units and ancillary equipment are determined by visual inspections. No additional containment volume is required for precipitation since the area is contained within a building. The largest maximum tank inventory in the RMPS system is Unit 12 at 21,768 gallons. Based on the design floor slopes, (minus the area of raised floor and equipment pedestals/foundations) plus the 0.53 foot high berm placed at each threshold the available secondary containment volume is approximately 29,598 gallons, which is sufficient to contain 100% of the largest tank (21,768 gallons). Calculations are provided in Appendix GG. The calculations use assumed information for proposed Unit 79, Surge Tank. Secondary containment calculations will be revised following design completion, if necessary. The location of secondary containment areas is provided on Figure 5-1 and in Appendix GG.

Secondary containment for proposed units in the narrow section on the west side of the Reverb Furnace Feed Room is provided by the lower level and Unit 5. The concrete floors and wall are sealed with an acid resistant coating. The secondary containment provided by the lower level is 32 feet long by 47.5 feet wide as shown on Drawing DM-126 in Appendix A. The wall height in the lower level is 8 feet, plus the depth of Unit The concrete floors are compatible with the physical and chemical characteristics of the managed liquids that could be leaked or spilled in the area. Releases from the regulated units and ancillary equipment are determined by visual inspections. No additional containment volume is required for precipitation since the area is contained within a building. The largest maximum proposed tank inventory in the RMPS system is Unit 82 estimated at 1,400 gallons. Based on the floor and wall dimensions, the available secondary containment volume is approximately 87,949 gallons, which is sufficient to contain 100% of the largest tank (1,400 gallons). Calculations are provided in Appendix G. The location of the secondary containment area is provided in Appendix GG.

The South Acid Storage Tank (Unit 10) and Acid Overflow Tank B (Unit 67) are located in the Desulfurization Area. The secondary containment for these two tanks are described in Section 5.3.5

5.3.4 Desulfurization

The desulfurization process utilizes four regulated tanks (66264.190) (three existing and one proposed) and one regulated miscellaneous units (66264.600). The permitted tanks associated with desulfurization consist of the North Mud Tank (Unit 7), Center Mud Tank (Unit 8), South Mud Tank (Unit 9), proposed Surge Tank (Unit 79). The three existing desulfurization tanks are located in the Desulfurization area/Mud Tank building. The permitted Miscellaneous Unit is the RMPS Filter Press Unit B (Unit 45) which is located in the northeast corner of the RMPS building. The proposed Surge Tank will be located with the RMPS Filter Press. Although located in the Desulfurization Area, the South Acid Storage Tank (Unit 10) and the Acid Overflow Tank B (Unit 67) are discussed as part of the separation process described in Section 5.3.2.

5.3.4.1 **Hazardous Waste Management**

The desulfurization process is conducted by three Mud Tanks which are used to treat the lead sulfate battery paste (mud) from the Paste Thickening Unit (Unit 12). The lead oxide/lead sulfate paste sent to the mud tanks is mixed with soda ash (Na_2CO_3) to neutralize and react with the lead sulfates and remaining acid to yield a lead carbonate past This paste is mechanically dewatered in the permitted RMPS Filter Press Unit B (Unit 45) and WWTP Filter Press (Unit 44 and stored in the Reverb Furnace Feed Room (Unit 33) prior to being dried in the Rotary Kiln (Unit 69) for charging to the Reverb Furnace (Unit 36). The filtrate, a partially neutralized acid as a sodium sulfate solution, is routed to the on-site Wastewater Treatment Plant. Following installation, the filtrate will be routed to the proposed Surge Tank (Unit 79), and then to the on-site Wastewater Treatment Plant. The desulfurization process greatly reduces the generation of sulfur dioxide in the smelting (pyrometallurgical) process by removing 75 to 80 percent of the sulfur from the feed.

The Desulfurization Area is a 160 feet long x 28.5 feet wide containment area situated along the west side of the RMPS building. The Desulfurization Area is enclosed and contains five tanks used for storing and treating hazardous waste (Units 7, 8, 9, 10 and 67). Units 7, 8, and 9 are part of the Desulfurization process. Units 10 and 67 are part of the RMPS separation process but are physically located in the Desulfurization Area. All five units are regulated as Tanks pursuant to 22264.190.

5.3.4.2 **Desulfurization Area – Tanks**

The permitted tanks associated with desulfurization consist of the North Mud Tank (Unit 7), Center Mud Tank (Unit 8), South Mud Tank (Unit 9), and proposed Surge Tank (Unit 79). The proposed Surge Tank (Unit 79) is located in RMPS. In addition to the Mud Tanks, the Desulfurization Area contains the South Acid Storage Tank (Unit 10) and Acid Overflow Tank B (Unit 67) which are used for component separation as discussed in Section 5.3.2.1.

Tank Descriptions

The Mud Tanks (Units 7, 8 and 9) are identical vertical tanks with conical bottoms constructed of stainless steel with a maximum inventory of 39,020 gallons and gross capacity of 41,875 gallons. The tanks measure 18 feet in diameter and are 22 feet high. The maximum treatment capacity of the permitted Mud Tanks is 310,000 gallons per day. The tank schematic for the permitted Mud Tanks is presented on Attachment 5.10. Each permitted Mud Tank rests on a reinforced concrete foundation that is coated with an acid-resistant epoxy. Each permitted Mud Tank operates at atmospheric pressure and holds slurry with a specific gravity of about 1.8. Design drawings for the tanks are provided in Appendix A. All associated piping is constructed of either PVC or stainless steel for corrosion resistance. The mud tank pumps are DURCO Flowserve Mark III recessed impeller pumps. Tank Assessment Reports for Units 7, 8 and 9 are provided in Appendix H.

The proposed Surge Tank (Unit 79) is an HDPE tank with gross capacity of 5,670 gallons. The operating capacity has not yet been determined and is assumed to be the same as the gross capacity. The tank is 9 feet in diameter by 11 feet 11 inches high. The maximum treatment capacity of the proposed Surge Tank is 250,000 gallons per day. The Class 2 Permit Modification for the proposed Surge Tank is provided in Appendix MM. An approximate location is provided on Figure 5.1. The proposed Surge Tank receives liquid from the WWTP Filter Press (Unit 44) and RMPS Filter Press Unit B (Unit 45). A pump will transfer the liquid within the tank to the on-site Wastewater Treatment Plant.

5.3.4.3 **Desulfurization Area – Miscellaneous Unit**

The permitted Miscellaneous Unit is the RMPS Filter Press Unit B (Unit 45).

<u>RMPS Filter Press Unit B (Unit 45)</u> is used to dewater the lead sulfate slurry paste from the permitted Mud Tanks (Nos. 7, 8 and 9). The unit is a carbon steel (painted with acid resistant epoxy) plate and frame style filter press. Unit 45 is approximately 39.1 feet long, 9.1 feet wide and 9.7 feet high with a filtering capacity of 215 c The recovered metal and desulfurized paste from the filter press is stockpiled in the permitted Reverb Furnace Feed Room (Unit 33) for subsequent processing. Any incidental spillage, leakage from the filter press accumulates on the floor of the RMPS Separation Area and drains to the RMPS Floor Sump (Unit 6). The RMPS floor is concrete with acid resistant epoxy coating. The RMPS Filter Press Unit B (Unit 45) will be replaced in 2014 as discussed in the Class 1 Permit Modification provided in Appendix EE.

5.3.5 <u>Secondary Containment for Desulfurization</u>

The Desulfurization Area is a 160 feet long by 28.5 feet wide containment area situated along the west side of the RMPS building. The Desulfurization Area is enclosed and contains 5 tanks used for storing and treating hazardous waste. All five units are regulated as Tanks pursuant to 22264.190.

The secondary containment structure for the Desulfurization Area (location of the permitted Mud Tanks, permitted Acid Storage Tanks, and permitted Overflow Tank B) provides localized secondary containment. The Desulfurization Area is contained within a concrete floored and walled, secondary containment system. The concrete wall is approximately 3 feet high. The concrete is coated with an acid resistant coating. The containment system is constructed to contain -60,195 gallons, which is sufficient to contain 100% of the largest tan 9,020 gallons). Calculations are provided in Appendix GG. The location of secondary containment areas is provided on Figure 5-1 and Appendix GG. The area is enclosed and therefore is not required to accommodate precipitation. Accumulated liquids from any leaks, or wash-down are collected within the secondary containment area and are pumped via above-ground piping to the permitted Equalization Tank r processing.

5.3.6 <u>Desulfurization Area Ancillary Sumps</u>

Two sumps which are ancillary to permitted units are used to collect wash-down water within the Desulfurization Area. The two sumps are the proposed Mud Tank Area Sump 1 and proposed Mud Tank Area Sump 2. The location of each sump is provided in Figure 5.5. Information for each sump is summarized in Table 5.1.

Proposed Mud Tank Building Sump 1 will be located near Center Mud Tank (Unit 8). Mud Tank Building Sump 1 will be 18.5 inches by 18.5 inches by 20.5 inches deep and will be constructed of stainless steel and concrete with leak detection. The sump capacity is 30 gallons. Mud Tank Building Sump 1 will transfer wash down water to North Mud Tank (Unit 7), Center Mud Tank (Unit 8) and South Mud Tank (Unit 9). Additional information is provided in the Class 2 Permit Modification provided in Appendix MM.

Proposed Mud Tank Building Sump 2 will be located at the southwest corner of the Desulfurization Building. Mud Tank Building Sump 2 will be 18.5 inches by 18.5 inches by 20.5 inches deep and will be constructed of stainless steel and concrete with leak detection. The sump capacity is 30 gallons. Mud Tank Building Sump 2 will transfer wash down water to Battery Dump Bin Sump (Unit 5). Additional information is provided in the Class 2 Permit Modification provided in Appendix MM.

5.4 WASTEWATER TREATMENT SYSTEM

The following subsections describe the current Wastewater Treatment System and associated hazardous waste management units. Although the Wastewater Treatment System Plant was replaced in December 2001 and was fully operational in May 2002, several original tanks remained and were incorporated into the replacement system.

5.4.1 Hazardous Waste Management

The Wastewater Treatment Plant is located between the Smelter Building and Engineering Building as shown on Figure 5.1. The Wastewater Treatment Plant is designed to treat wastewater generated by RMPS, collected stormwater from the permitted Drop-out System and on-site Stormwater Surface Impoundment, gray water, scrubber wastewater, filtrate from the WWTP Filter Press and RMPS Filter Press Unit B and other miscellaneous liquids generated at the facility. The Wastewater Treatment Plant removes heavy metals and other solids from the wastewater prior to being discharged to the local sewer system in accordance with the facility's POTW permit. The Wastewater Treatment Plant is designed to operate at a normal treatment capacity of 310,000 gallons per day. Figure 5.3 depicts the process flow diagram for the Wastewater Treatment Plant.

Incoming wastewater from the permitted WWTP Filter Press, RMPS Filter Press Unit B, scrubber wastewater from the permitted Oxidation Tank, stormwater from the Drop-out System and Stormwater Surface Impoundment, and other miscellaneous wastewater generated at the facility are collected and equalized in two permitted Equalization Tanks. Sulfuric acid, from the permitted South Acid Storage Tank, is added to the tanks to maintain a pH of around 2.5. The wastewater then enters a series of five permitted Reaction Tanks for metal adsorption/precipitation. Ferric sulfate and caustic are added to form ferric hydroxide (ferrihydride), which acts as a metal adsorbent. The permitted Reaction Tanks are maintained at different pHs so that the various metals (lead, antimony, arsenic, and cadmium) adsorb onto the ferrihydride particle. From the permitted Reaction Tanks, the wastewater enters the permitted Flocculation Tank where polymer is added to enhance settling. Solids containing the adsorbed metals gravity settle in the WWTP Clarifier, an inclined plate clarifier equipped with influent diffusion baffles and chambers. The solids that settle out are transferred to the permitted Sludge Holding Tank. The clarified water is polished through the sand filtration system to remove any residual solids prior to discharge to the POTW in accordance with the facility's discharge permit. The clarifier underflow or solids are pumped to the permitted Sludge Holding Tank. The solids are pumped to the WWTP Filter Press. The filtrate is then pumped to Equalization Tanks.

The resulting filter cake from the WWTP Filter Press is conveyed to the permitted Reverb Furnace Feed Room where it is fed into the permitted Reverb Furnace for lead content. In the event the conveyor is down, filter cake will be placed in two metal totes and transported to the Reverb Furnace Feed Room. WWTP Filter Press and the transfer totes are located in the RMPS Building. The totes remain within the secondary containment of the RMPS Building and Reverb Furnace Feed Room during the transfer process. Totes are emptied daily and covered when not being filled or emptied.

A sump, the WWTP Sump, located in the center of the wastewater treatment plant, is used to receive wash-down water and stormwater from the Wastewater Treatment Plant area. The contents of the collected wastewater are pumped to Equalization Tanks 1 and 2.

Nineteen regulated tanks (66264.190) and one regulated miscellaneous unit (66264.600) are used in the wastewater treatment plant.

5.4.2 Wastewater Treatment Plant Tanks

The permitted tanks at the WWTP are the Equalization Tanks 1 and 2 (Units 52 and 53), WWTP Acid Storage Tank (Unit 63), WWTP Sump (Unit 62), Reaction Tanks 1 through 5 (Units 57 to 61), Flocculation Tank (Unit 55), WWTP Clarifier (Unit 56), Sand Filter Feed (Unit 77), Sand Filters 1 through 5 (Unit 71 to 75), WWTP Recycled Acid Tank (Unit 76) and Sludge Holding Tank (Unit 54).

5.4.2.1 **Equalization Tanks**

The Equalization Tank system consists of two permitted tanks designated as the permitted Equalization Tank 1 (Unit 52) and the permitted Equalization Tank 2 (Unit 53). The permitted tanks are constructed of steel. Equalization Tank 1 (Unit 52) has a maximum inventory of 61,675 gallons and gross capacity of 65,764 gallons. Equalization Tank 2 (Unit 53) has a maximum inventory of 61,817 gallons and a gross capacity of 65,906 gallons. They contain sodium sulfate solution (specific gravity 1.18), stormwater (specific gravity 1.0), gray water (specific gravity 1.0), wash down water (specific gravity 1.0) and sand filter backwash (specific gravity 1.0) and a pH of around 2. Each tank is 21 feet 6.5 inches in diameter and has 18 inches of freeboard. Equalization Tank 1 is 24 feet 1.5 inches tall and Equalization Tank 2 is 24 feet 2.125 inches tall. The tank schematic for the permitted Equalization Tanks is presented on Attachment 5.12. Tank Assessment Reports for Units 52 and 53 are provided in Appendix H.

5.4.2.2 **Reaction Tank**

The permitted Reaction Tank system consists of five permitted tanks designated as Reaction Tank 1 (Unit 57), Reaction Tank 2 (Unit 58), Reaction Tank 3 (Unit 59), Reaction Tank 4 (Unit 60), and Reaction Tank 5 (Unit 61). Each tank is 12 feet in diameter, 15 feet in height, has 4.5 to 12 inches of freeboard and a gross capacity of 12,690 gallons. The maximum inventory of Reaction Tank 1 is 12,372 gallons. The maximum inventory of Reaction Tank 2 is 12,302 gallons. The maximum inventory of Reaction Tank 3 is 12,267 gallons. The maximum inventory of Reaction Tank 4 is 12,055 gallons. The maximum inventory of Reaction Tank 5 is 11,844 gallons. The tank schematic for the Reaction Tanks is presented on Attachment 5.13. Tank Assessment Reports for Units 57 through 61 are provided in Appendix H.

DTSC has expressed concern regarding the proximity of the Reaction Tanks to the secondary containment wall for the WWTP, and the potential for a slosh wave during a seismic event to fall outside of the WWTP secondary containment. Slosh wave calculations are provided in the Tank Assessment Reports provided in Appendix H. To address DTSC's concern, a splash guard wall will be constructed at the portions of the WWTP wall which are in close proximity to the Reaction Tanks. A conceptual design is provided in Appendix KK. A final design will be submitted to DTSC in accordance with the agreed schedule. Following DTSC approval of the design, the splash wall will be constructed in accordance with the agreed schedule and prior to resuming facility operations. The associated Tank Assessment Reports will be revised following installation.

5.4.2.3 **Flocculation Tank**

The Flocculation Tank (Unit 55) is constructed of stainless steel and contains dual chambers. The wastewater contained in the tank has a specific gravity of 1.1 and a pH of 9. The tank is approximately 7 feet 0.38 inches wide, 9 feet 6.56 inches long, and 8 feet 3.5 inches high and has a maximum inventory of 3,661 gallons and a gross capacity of 4,163 gallons. The tank schematic for the permitted Flocculation Tank is presented on Attachment 5.14. The Tank Assessment Report for Unit 55 is provided in Appendix H.

5.4.2.4 **WWTP Clarifier**

The permitted WWTP Clarifier (Unit 56) is constructed of stainless steel and contains wastewater with a specific gravity of 1.1 and a pH of 9. The tank is an 8,000 gallon inclined plate type settling vessel that is approximately 20 feet 1.5 inches wide, 9 feet 5.5 inches long, 11 feet 6 inches tall and has nine inches of freeboard. The tank schematic for the permitted WWTP Clarifier is presented on Attachment 5.15. The Tank Assessment Report for Unit 56 is provided in Appendix H.

5.4.2.5 **Sludge Holding Tank**

The Sludge Holding Tank (Unit 54) has a maximum inventory of 6,293 gallons and gross capacity of 6,880 gallons. This tank is constructed of natural linear polyethylene. The contents have a specific gravity of 1.8 and a pH of 9. The tank is 10 feet in diameter and 17 feet high. The tank schematic for the permitted Sludge Holding Tank is presented on Attachment 5.16. The Tank Assessment Report for Unit 54 is provided in Appendix H.

5.4.2.6 **Filtration System**

The sand filtration system consists of a Sand Filter Feed Tank (Unit 77), and five pressurized Sand Filter Tanks (Units 71, 72, 73, 74 and 75), Clarified wastewater is received from the permitted WWTP Clarifier for polishing and temporarily stored in the Sand Filter Feed Tank (Unit 77). The water is then transferred to the Sand Filter Tanks (Units 71, 72, 73, 74 and 75) to remove any remaining solids from the wastewater. Solid removal is conducted by filtration through sand media before the treated water is discharged to the POTW in accordance with the facility discharge permit. When the sand filters become clogged, clean water is pumped through the system to dislodge any solids that may be blinding the system. The resulting backwash water is transferred to Equalization Tanks 1 and 2.

5.4.2.6.1 Sand Filter Feed Tank

The Sand Filter Feed Tank (Unit 77) is a polyethylene tank with a maximum inventory of 4,797 gallons and gross capacity of 6,266 gallons. The tank is 10 feet in diameter and 10 feet 8 inches high. The tank schematic for the Sand Filter Feed Tank is presented as Attachment 5.24. The Tank Assessment Report for Unit 77 is provided in Appendix H.

5.4.2.6.2 Sand Filter Tanks

The Sand Filter Tanks (Units 71, 72, 73, 74 and 75) are stainless steel tanks. Each tank is 4 feet in diameter by 5 feet high with a maximum inventory and gross capacity of 470 gallons. Each tank operates at a nominal flow rate of 300 gpm with a peak flow rate of 600 gpm. The tank schematic for the Sand Filter Feed Tanks is presented as Attachment 5.25. The Tank Assessment Reports for Units 71 through 75 are provided in Appendix H.

5.4.2.7 **Acid Storage Tanks**

There are two acid storage tanks at the WWTP: WWTP Acid Storage Tank (Unit 63) and WWTP Recycled Acid Tank (Unit 76).

The WWTP Acid Storage Tank (Unit 63) has a maximum inventory of 13,178 gallons and gross capacity of 14,081 gallons. This tank is constructed of polyethylene and contains clarified acid used for pH adjustments in the Wastewater Treatment Plant. The tank is 12 feet in diameter, and 16 feet 7 3/4 inches tall. The tank schematic for the permitted WWTP Acid Storage Tank is presented on Attachment 5.17. The Tank Assessment Report for Unit 63 is provided in Appendix H.

The WWTP Recycled Acid Tank (Unit 76) is a polyethylene tank with a maximum inventory of 6,903 gallons and gross capacity of 8,372 gallons. The tank is 10 feet in diameter by 14 feet 3 inches high. The tank schematic for the WWTP Recycled Acid Tank (Unit 76) is presented as Attachment 5.26. The Tank Assessment Report for Unit 76 is provided in Appendix H.

5.4.2.8 **WWTP Sump**

The permitted WWTP Sump (Unit 62) has a maximum inventory and gross capacity of 662 gallons. This permitted unit is a double-walled, stainless steel in-ground sump imbedded in reinforced concrete and contains wash-down and rain water from the Wastewater Treatment Plant area. The sump is 4 feet wide, 8 feet 6 inches long and 2 feet 10.75 inches high. The tank schematic for the permitted WWTP Sump is presented on Attachment 5.18. The Tank Assessment Report for Unit 62 is provided in Appendix H.

5.4.3 Wastewater Treatment Plant Miscellaneous Unit

The permitted miscellaneous unit is the WWTP Filter Press (Unit 44).

The permitted WWTP Filter Press (Unit 44) is used to mitigate sporadic blinding of the sand filter media and sediment deposition within the equalization tanks and is also used for dewatering of lead sulfate slurry paste from the permitted Mud Tanks (Nos. 7, 8 and 9). The use of this filter press has resulted in a marked improvement of the system performance and ability to meet the facility's wastewater discharge permit limitations. Any spillage and leakage from the filter press operation accumulates on the floor of the RMPS Separation Area and drains to the RMPS Floor Sump (Unit 6). The RMPS floor is concrete with acid resistant epoxy coating.

The WWTP Filter Press (Unit 44) is 24 feet 1 inch wide, 6 feet 2 inches deep and 5 feet 10 inches tall. The unit is constructed of cast iron with an acid-resistant paint with polypropylene chambers.

5.4.4 Secondary Containment for Wastewater Treatment

The Wastewater Treatment Plant is contained within the concrete walled, secondary containment system that is constructed with a concrete floor. The floor of the Wastewater Treatment Plant is constructed of Type 5 sulfate resistant concrete and is sloped 0.5 percent to the permitted WWTP Sump. The permitted sump (Unit 62) is a double-walled, stainless steel unit equipped with a leak-detection system designed to meet RCRA tank requirements. The concrete walls which enclose the Wastewater Treatment Plant are also constructed of sulfate resistant concrete, measure 2.8 feet high and are one-foot thick. The WWTP secondary containment is 106 feet long by 58 feet wide, minus a 14 feet by 26 feet area at the southeast corner. Assuming the largest tank has failed and the associated area is not displaced, the maximum storage capacity of the secondary containment area is 81,495 gallons, and is greater than the regulatory requirement for containing 100% of the capacity of the largest tank (61,817 gallons) within the boundary and the precipitation from a 25-year, 24-hour storm event. The permitted WWTP Sump is equipped with a level activated pump. Accumulated liquids from any leaks, wash-down, or stormwater events is collected within the containment area and pumped via above-ground piping to the permitted Equalization Tanks 1 and 2 for processing. Secondary containment calculations are provided in Appendix GG. The location of secondary containment areas is provided on Figure 5-1.

5.5 CONTAINMENT BUILDINGS

Operating practices at the Exide facility include:

1) The staging of feed material in the permitted Reverb Furnace Feed Room, prior to it being charged to the permitted Rotary Kiln and permitted Reverb Furnace to recover lead; and,
2) The staging of feed material in the permitted Blast Furnace Feed Room prior to it being charged to the permitted Blast Furnace to recover lead.

The furnace feed material must be stored for short periods in order to assure a continuous, homogenous source of charge material to the permitted furnaces. Large volumes of the feed material are produced, which is not amenable to management in permitted tanks. Therefore, the material is stored on an engineered concrete floor system inside a building, meeting the requirements for a containment building (CCR 66264.1100 through 66264.1102). The management methods for the material are consistent with industry standards nationwide. Figure 5.1 indicates the location of permitted Reverb Furnace Feed Room and permitted Blast Furnace Feed Room.

The U.S. Environmental Protection Agency (EPA) established the containment building as a hazardous waste management unit to provide a "non-land disposal" unit for material that cannot be practically managed in tanks or containers. The storage of battery parts prior to charging them to the furnace was a specific example of the type of material that EPA intended for management in a containment building.

5.5.1 Reverb Furnace Feed Room

The desulfurized lead paste, metallic lead, and battery chip/separator material components of the battery separated during the RMPS process and Wastewater Treatment Plant sludge are stored in the permitted Reverb Furnace Feed Room (Unit 33) prior to lead reclamation. The Reverb Furnace Feed Room is approximately 220 feet by 100 feet and 30 feet by 200 feet for a total area of 29,479 square feet. The Reverb Furnace Feed Room has a maximum storage capacity of 4,379 cubic yards of Reverb Furnace Feed material. A detailed description of the Reverb Furnace Feed Room and operating procedures is presented below.

5.5.1.1 **Structure**

The permitted Reverb Furnace Feed Room is an enclosed, self-supporting structure. Dravo Engineers and Constructors originally designed the building in the early 1980s. The building has a concrete floor and foundation and a structural steel frame that supports a fiberglass and sheet metal wall and roof system. Within the building, cast-in-place concrete masonry walls provide the strength to support themselves and the material contents stored within the unit. The design and construction meet applicable building code standards for the area and are sufficient to prevent failure due to pressure gradients, settlement, compression, or uplift. The surfaces that are exposed to direct contact with the feed material are concrete which is chemically compatible with the material and also provides the strength necessary to support the material. The building was designed to withstand exposure to the various climatic conditions of the region.

In March 2000, the Reverb Furnace Feed Room floor was replaced. The construction specifications and details for the new floor system are provided in the construction drawings located in Appendix B. Leak detection system information is provided in Appendix II. The replacement floor (including the secondary containment systems for the management of wet furnace feed material) consists of the following components (listed in order from top to bottom).

- Acid resistant asphaltic concrete (1.5 – 2 inch layer)
- Reinforced concrete slab (8-inch layer) with a compressive strength of 5,000 psi
- Sand (4-inch layer)
- 60 MIL HDPE Geomembrane
- Geonet/Geotextile membrane
- 60 MIL HDPE Geomembrane
- Subgrade – compacted to 95%

In 2008, the floor system (including concrete slab, sand, 60-mil primary HDPE geomembrane, geonet, 60-mil HDPE geomembrane) was replaced in the Corridor portion of the Reverb Furnace Feed Room. Information on the replacement is provided in Appendix II. A 36 inch by 48 inch by 2 ft deep sump was installed during the floor system replacement.

The acid resistant asphaltic concrete floor serves as the wear surface for the permitted Reverb Furnace Feed Room. The 8-inch thick layer of reinforced concrete is sufficiently durable to withstand the movement of personnel and equipment used to move the feed material stockpiled within this building. The reinforced concrete and sand layer provide protection for the underlying geosynthetic components (Primary Geomembrane/Leak Detection Layer/Secondary Geomembrane).

In order to minimize the accumulation of liquid, the floor system surface is sloped so that the residual liquids drains towards one of several sumps. This configuration prevents any hydraulic head from developing over the containment building floor. An epoxy coating was applied to the containment building walls up to a height of three feet above the containment building floor. The geosynthetic components were designed to mirror the floor system surface promoting drainage to low points at the sump locations.

5.5.1.2 **Standard Operating Procedures**

A front-end loader is used within the permitted Reverb Furnace Feed Room to stage the material and to transport the material within the building to the live bottom hoppe the enclosed conveyor. A stainless steel plate is provided at the hopper load point to protect the wearing surface of this localized area. Concrete filled bollards are provided within the building at strategic locations to protect the structure from inadvertent impact from the front-end load

The reinforced concrete slab and sand layer serve as the protective barrier for the unit. It is sufficiently durable to withstand the movement of personnel and the front-end loader. This floor is inspected daily, and repairs and resurfacing are performed as necessary. The floor is maintained to be free of significa racks, gaps, corrosion, or other deterioration that could cause a hazardous constituent to be released through this barrie

Liquids that penetrate the protective barrier layer (concrete slab and sand) are intercepted by the primary layer of 60 mil HDPE geomembrane and directed laterally on top of the primary layer of 60 mil HDPE towards the sump locations. If the liquid moving laterally on top of the primary layer of 60 mil HDPE geomembrane encounters a hole the liquid will seep into the leak detection layer and trigger a leak detection sensor. The secondary layer of 60 mil HDPE geomembrane prevents further vertical migration.

The atmosphere within the permitted Reverb Furnace Feed Room is maintained under negative pressure. These controls are sufficient to prevent fugitive dust emissions to meet the no visible emission standard as required by the containment building regulations.

The permitted Reverb Furnace Feed Room is designed and operated to ensure containment and prevent the tracking of material from the building by personnel or equipment. There is one bay door for equipment egress and ingress and one doorway for personnel. The bay door is at a higher elevation than the ground level, which prevents precipitation from flowing into the building and preventing material from exiting the buildin The building is thus enclosed to prevent exposure to precipitation, wind, and run-on, and to assure containment of the material managed within.

The permitted Reverb Furnace Feed Room is designed and operated in a fashion that assures that material will not come in contact with any of the openings. Additionally, the level of the staged feed material is managed so that it does not exceed the height of the walls. The Reverb Furnace Feed Room walls are 31 to 36 feet high.

The nature of the operation is such that the characteristics of the material stored in the permitted Reverb Furnace Feed Room does not significantly change. The area is used solely to store dewatered, desulfurized lead paste, metallic lead, and battery chips/separator materi There are no incompatible wastes or reagents managed within this building.

The front-end loader utilized in this building is dedicated to the permitted Reverb Furnace Feed Room. The loader is used to transfer the feed material from the staging piles to the live bottom hopper at the enclosed feed conveyor. This system automatically delivers the material to the permitted Rotary Kiln, which discharges the material to the permitted Reverb Furnace charging system. This design provides for the movement of the material through the system without it being exposed to the open environment. It also greatly reduces the potential for tracking of material out of the unit by personnel or equipment.

5.5.1.3 **Truck Wash Sump**

The Reverb Furnace Feed Room includes an enclosed corridor for transfer of feed material from external sources to the Reverb Furnace Feed Room. A truck wash area (including the Truck Wash Sump (Unit 51)) is utilized to prevent the tracking of hazardous waste out of the corridor and permitted Feed Rooms. The Truck Wash Sump collects liquid and wash-down water from the truck wash area at the Reverb Furnace Feed Room. The surrounding floor drains to the Truck Wash Sump at a minimum slope of 2.9%. The water collected in the permitted Truck Wash Sump is pumpe the South Flue Dust Slurry Tank (No. 32) for processing.

The Truck Wash Sump (Unit 51) is a double HDPE-lined, epoxy coated concrete sump permitted as a tank under 66264.190. The sump has a maximum inventory and gross capacity of 154 gallons and is 2 feet by 4 feet 6 inches with a depth of 2 feet 7 inches. Attachment 5.18 depicts the schematic for the permitted Truck Wash Sump. The Tank Assessment Report for Unit 51 is provided in Appendix H.

Construction specifications and detailed construction drawings for the permitted Truck Wash Sump are included in Appendix B.

5.5.2 Blast Furnace Feed Room

The permitted Blast Furnace Feed Room, located within the Smelter Building as indicated on Drawing DM-103, is an enclosed, self-supporting structure measuring approximately 90 feet by 120 feet for an area of 10,800 square feet. Dravo Engineers and Constructors originally designed the Smelter Building in the early 1980s. The permitted feed room has a concrete floor and foundation, and a structural steel frame that supports a fiberglass and sheet metal wall and roof system. Within the permitted Feed Room, cast-in-place concrete masonry walls provide the strength to support themselves and the material contents stored within the area. The design and construction meet applicable building code standards for the area and are sufficient to prevent failure due to pressure gradients, settlement, compression, or uplift. The surfaces that are exposed to direct contact with the dry feed materials is concrete, which is chemically compatible with the material and also provides the strength necessary to support the material. The permitted Blast Furnace Feed Room was designed to withstand exposure to the various climatic conditions of the region.

A front-end loader is used within the permitted Feed Room to stage the material and to transport the material within the area to the skip hoi hat feeds the permitted Blast Furnace. The permitted Feed Room was designed and constructed to withstand the stresses of daily operation, including the movement of heavy equipment within the area and contact of such equipment with containment walls. Concrete-filled bollards are provided within the area at strategic locations to protect the structure from inadvertent impact from the front-end loader.

The reinforced concrete floor serves as the primary barrier for the permitted Blast Furnace Feed Room. The floor is sufficiently durable to withstand the movement of personnel and the front-end loader. The floor is inspected daily, and repaired/resurfaced as necessary. The floor is maintained to be free of significant cracks, gaps, corrosion, or other deterioration that could cause a hazardous constituent to be released through the floor system.

The feed material managed in the permitted Blast Furnace Feed Room is comprised of reverb slag, refinery dross, lead-bearing plant scrap purchased from off site, industrial battery plates/groups, crushed steel drums, scrap cast iron, metallurgical grade coke, limerock, mill scale, and silica (sand). This material does not contain free liquids.

The permitted Blast Furnace Feed Room is maintained under negative pressure. This control is sufficient to prevent fugitive dust emissions to meet the no visible emission standard.

The permitted Blast Furnace Feed Room is designed and operated to ensure containment and prevent the tracking of material from the area by personnel or equipment. There are three bay doors for equipment egress and ingress and one doorway for personnel. The bay doors are maintained in the closed position. The bay doors are equipped with a transparent industrial curtain. The curtain provides a barrier that allows the ventilation system to maintain a negative pressure within the building. Also, the floor is sloped intentionally to ensure containment of material within the building. The permitted Blast Furnace Feed Room is thus enclosed to prevent exposure to precipitation, wind, and run-on, and to assure containment of material managed within.

The permitted Blast Furnace Feed Room is designed and operated in a way that assures that material does not come in contact with any of the openings. Additionally, the level of the staged feed material is managed so that it does not exceed the height of the containment walls.

The floor of the containment building is 8-inch thick concrete, reinforced with #4 bars at 12 inches on center, each way. The design strength of the concrete is 4,000 psi. The walls, which are designed to be in contact with the feed material, extend ten feet high above the floor, and are ten inches thick, with #4 bars at 12 inches on center, each way.

The nature of the operation is such that the characteristics of the material stored in the permitted Blast Furnace Feed Room does not significantly change. The area is used solely to store the above-described material. There are no incompatible wastes or reagents managed within this area. The front-end loader that is utilized in the area is dedicated to the permitted Blast Furnace Feed Room. The loader is used to transfer the feed material from the staging piles to the skip hoist. This system automatically delivers the feed material to the permitted Blast Furnace. The use of dedicated equipment greatly reduces the potential for tracking of material out of the building.

5.5.3 Secondary Containment

The secondary containment for the permitted Reverb Furnace Feed Room is provided by the building. The upgrades to the floor system and construction of the permitted Reverb Furnace Feed Room described in Section 5.5.1 provided a double-lined floor system and double-lined sumps to collect any free liquids that may accumulate within the system.

The permitted Blast Furnace Feed Room only manages dry material; therefore, it is exempt from secondary containment requirements.

5.6 METALLURGICAL FURNACES AND KETTLES

5.6.1 Hazardous Waste Management - Furnaces

The furnaces at the Vernon facility are exempt from federal regulation under 40 CFR 266, subpart H (Hazardous Waste Burned in Boilers and Industrial Furnaces), except for paragraphs 266.100(c)(3), 266.101, and 266.112. As required under 40 CFR 266.100(c) (3), written notice was provided to the EPA, Region IX in August 1991 stating that all hazardous waste charged to the furnaces for lead reclamation is exempt under paragraph 266.100(c)(3). Only the material described in Section 4.0 is charged to the furnaces. Lead-bearing material reclaimed in the furnaces fall into one or more of the following categories:

- The material is classified as a hazardous waste and is listed in Appendix XI of 40 CFR 266;
- The material is federally exempt from classification as a hazardous waste based upon 40 CFR 261.2(c)(3), Table 1 because it is a by-product (e.g., dross) or sludge exhibiting a characteristic and is being reclaimed; and/or
- The material is recyclable plant scrap metal and is exempt from regulation as a hazardous waste when recycled by 40 CFR 261.6(a)(3)(ii).

All of the material described above contain recoverable levels of lead and is listed in Appendix XI of 40 CFR 266. No material that exhibits the toxicity characteristic for an organic constituent is charged to either furnace. The only "listed waste" that is reclaimed in the furnaces is K069 (emission control dust from a secondary lead furnace). This material is not listed for an organic constituent. The above-described lead-bearing material is charged to the furnace for metals recovery in accordance with 40 CFR 266.100(c)(3).

Information is obtained as described in Section 4.0, as necessary, to ensure continued compliance with these requirements. Sampling and analysis is also conducted to ensure all hazardous waste and other feedstock meet the requirements of this section, with appropriate records maintained for a minimum of three years.

In accordance with 40 CFR 266.101, all hazardous waste is stored as required under parts 264 and 270. Since the facility is not proposing to except furnace residues from the definition of a hazardous waste under paragraphs 261.4(b)(4), (7), or (8), 40 CFR 266.112 is not applicable.

The two metallurgical furnaces operated at the facility, the Reverb Furnace and Blast Furnace, were not required to be regulated by RCRA in the Part B Permit Application revision submitted to DTSC in November 1993. Since that revision, the State of California enacted the Proposed Emergency Regulations "Amendment to Hazardous Waste Burned in Boilers and Industrial Furnaces (R-96-44)" that requires the facility to incorporate the two furnaces as regulated miscellaneous uni Miscellaneous units are regulated under 22 CCR 66264.600. Specific requirements for complying with the Proposed Emergency Regulations include providing secondary containment in case of an accidental release and include the furnaces in the closure cost estimate (addressed in Section 12.0). In addition, DTSC requires that the standards for operating, maintaining, monitoring, notifying, record keeping and reporting requirements meet the "Final Air Toxics Rule for the Secondary Lead Smelter Industry" dated May 31, 1994. This final rule, referred to as the National Emission Standards for Hazardous Air Pollutants (NESHAP) from Secondary Lead Smelting, detail specific requirements for reducing hazardous air pollutants from secondary lead smelters. These regulations are cited in the federal regulations at 40 CFR 63.541 through 63.550.

5.6.1.1 **Reverb Furnace**

Feed material stored in the permitted Reverb Furnace Feed Room (Unit 33) is processed through the permitted Rotary Kiln (Unit 69) to reduce the moisture content of the feed before it enters the Reverb Furnace (Unit 36). Raw material is transferred to the Rotary Kiln via an enclosed belt conveyor. The dried feed is then delivered to the permitted Reverb Furnace via an enclosed screw conveyor. The feed material is fed into the permitted Reverb Furnace using a ram feeder system located at the northern end of the permitted furnace. The Rotary Kiln Enclosure is maintained under negative pressure.

The main components of the permitted Reverb Furnace are the charge door, the burners, the slag port, and the lead well. During melting operations, lead is more easily reduced and settles at the bottom of the permitted Reverb Furnace and is removed by means of the lead well. The upper slag layer (containing other metals such as antimony, arsenic and tin) is tapped by means of the slag port located about four feet above the bottom of the permitted Reverb Furnace. The slag tapped from the permitted Reverb Furnace is placed into molds (reverb trays) and is allowed to cool before being transferred to the permitted Blast Furnace Feed Room for staging prior to processing in the Blast Furnace.

The lead tapped from the permitted Reverb Furnace is collected in the soft lead receiving and refining kettles for further processing to remove any remaining metallic impurities.

5.6.1.2 **Blast Furnace**

The permitted Blast Furnace is charged by adding lead-bearing plant scrap, reverb slag, refinery dross, and/or industrial battery plates/groups, crushed drums or scrap cast iron, limerock, sand, and metallurgical grade coke into the skip-hoist, which transfers the feed material into the top of the permitted furnace. During the process of recovering lead from the permitted Blast Furnace, lead is tapped and collected into the hard lead receiving and refining kettles where alloy lead is prepared according to the customer specifications. Slag is tapped from the permitted furnace into slag pots where it is allowed to cool and solidify. The solidified slag pots are dumped in the permitted Blast Furnace Feed Room to allow further cooling. The slag bottoms are inspected to determine if a portion of the bottom may be returned to the permitted Blast Furnace, and the rest is loaded into a container for shipment off-site to a regulated disposal facility.

The main components of the permitted Blast Furnace (in order from top to bottom) are the charging shaft, the water-jacketed reaction zone, and the crucible. The charging shaft is brick-lined and typically about ten feet high. The double-walled water-jacket is typically five feet high and is lined with fire-box steel. The crucible is a brick-lined, welded-steel vessel and is fitted with a cast iron spout at one side just below the tap hole in the jacket for the slag to escape.

5.6.2 Furnace Units

5.6.2.1 **Reverb Furnace**

The permitted Reverb Furnace (Unit 36) is a horizontally oriented furnace constructed of refractory brick with an exterior support frame. The permitted Reverb Furnace is 19 feet wide by 39 feet 5 inches long by 12 feet 9 inches high and has a capacity of 450 tons per day. Other specifications for the Reverb Furnace include 30,000,000 Btu per hour natural gas or LPG fired, with oxygen enrichment, with a lead well, three launders, and a slag tap. The Reverb Furnace is located on the western side of the Smelter Building. The location of the permitted Reverb Furnace is shown on Figure 5.1.

5.6.2.2 **Rotary Kiln**

The Rotary Kiln (Unit 69) is a cylindrical ASTM 515, grade 70 steel kiln measuring 6 feet in diameter and 35 feet in length with a rotation of 7.5 rpm. The Rotary Kiln has a maximum capacity of 720 tons per day. The Rotary Kiln is located within the Rotary Kiln Enclosure in the Baghouse Building between the Reverb Furnace Feed Room and the Smelter Building. The Rotary Kiln Enclosure is operated under negative pressure. The location of the Rotary Kiln is shown on Figure 5.1.

5.6.2.3 **Blast Furnace**

The permitted Blast Furnace (Unit 37) is a vertically configured furnace and is constructed of water jacketed steel as compared to the reverb brick of the permitted Reverb Furnace. The permitted Blast Furnace is 6 feet 8 inches wide by 8 feet 7 inches long by 23 feet 3 inches high and has a capacity of 250 tons per day. The 4,000,000 Btu per hour coke-fired, permitted Blast Furnace has a lead well and a slag tap. The permitted Blast Furnace is located on the western side of the Smelter Building as shown on Figure 5.1.

5.6.3 Furnace Containment

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The permitted Reverb Furnace and permitted Blast Furnace also require secondary containment in the event that an incident occurs that causes molten lead to be released from the permitted furnaces. The two permitted furnaces are located in the Smelter Building, which is a free standing building with reinforced concrete floors, concrete and sheet metal walls and a sheet metal roof. If a release occurs, the hot, molten lead immediately starts to solidify upon release from the permitted furnace and is contained within the confines of the Smelter Building. No additional secondary containment is required.

5.6.4 Hazardous Waste Management – Kettles

The receiving and refining kettles comprise fourteen regulated miscellaneous units (66264.600). The refining process purifies the rough lead into pure lead or application-specific alloys per customer specifications.

Lead tapped from the permitted Reverb Furnace is transferred to the soft lead receiving kettles with three launders. The soft lead receiving kettles are Receiving Kettle E (Unit 91), Receiving Kettle F (Unit 92) and Receiving Kettle G (Unit 93). Following addition of refining agents and temperature control for different alloy types, the lead is pumped to the soft lead refining kettles using three portable pumps and a 12 inch diameter pipe. The soft lead refining kettles are Refining Kettle 6 (Unit 99), Refining Kettle 7 (Unit 100), Refining Kettle 8 (Unit 101), and Refining Kettle 9 (Unit 102). Final refining and casting occurs in the refining kettles. Refined lead is then cast into molds.

Lead tapped from the permitted Blast Furnace is transferred to the hard lead receiving kettles with two launders. The hard lead receiving kettles are Receiving Kettle A (Unit 89) and Receiving Kettle B (Unit 90). Following addition of refining agents and temperature control for different alloy types, the lead is pumped to the hard lead refining kettles using two portable pumps and a 12 inch diameter pipe. The hard lead refining kettles are Refining Kettle 1 (Unit 94), Refining Kettle 2 (Unit 95), Refining Kettle 3 (Unit 96), Refining Kettle 4 (Unit 97), and Refining Kettle 5 (Unit 98). Refining Kettle 5 can also be changed to a smaller capacity billet kettle. Final refining and casting occurs in the refining kettles. Refined lead is then cast into molds.

Agitators and portable mixers are also used in the receiving and refining kettles. As the kettle ages, the steel expands and the capacity increases approximately 5 to 15 tons. Kettles will be replaced periodically when the steel expansion no longer meets allowable tolerances. At least two spare kettles are typically maintained at the facility to allow for replacement as needed. The smaller capacity billet kettle is also maintained in storage at the facility when not in use.

At any one time, only 25 percent of receiving and refining kettles are in use. All kettles are not in use at the same time. During the refining process, dross is skimmed from the lead and is placed into a pot and transferred to the Blast Furnace Feed Room (Unit 34) for reintroduction into the blast furnace as a reagent/flux.

The lead produced during the refining process is a saleable product to customers.

5.6.5 Kettle Units

5.6.5.1 Soft Lead Receiving Kettles

The three permitted soft lead receiving kettles (Receiving Kettle E (Unit 91), Receiving Kettle F (Unit 92) and Receiving Kettle G (Unit 93)) each have a maximum inventory of 100 tons and are constructed of steel. Each kettle is 105 inches in inner diameter with an inner height of approximately 86.5 inches. The maximum treatment rate of these kettles is 240 to 300 tons per day combined for the three kettles. The location of the soft lead receiving kettles is provided on Figure 5.1. A drawing detailing a typical 100 ton kettle is provided in Appendix A.

The kettles are top-access pots sunk into the refinery floor and are refractory-lined. Each permitted soft lead receiving kettle operates at atmospheric pressure.

5.6.5.2 Soft Lead Refining Kettles

The four permitted soft lead refining kettles (Refining Kettle 6 (Unit 99), Refining Kettle 7 (Unit 100), Refining Kettle 8 (Unit 101), and Refining Kettle 9 (Unit 102) each have a maximum inventory of 100 tons and are constructed of steel. Each kettle is 105 inches in inner diameter with an inner height of approximately 86.5 inches. The maximum treatment rate of these kettles is 240 to 300 tons per day combined for the four kettles. The location of the soft lead refining kettles is provided on Figure 5.1. A drawing detailing a kettle is provided in Appendix A.

The kettles are top-access pots sunk into the refinery floor and are refractory-lined. Each permitted soft lead refining kettle operates at atmospheric pressure.

5.6.5.3 Hard Lead Receiving Kettles

The two permitted hard lead receiving kettles (Receiving Kettle A (Unit 89), and Receiving Kettle B (Unit 90)) each have a maximum inventory of 100 tons and are constructed of steel. Each kettle is 105 inches in inner diameter with an inner height of approximately 86.5 inches. The maximum treatment rate of these kettles is 80 to 90 tons per day combined for the two kettles. The location of the hard lead receiving kettles is provided on Figure 5.1. A drawing detailing a kettle is provided in Appendix A.

The kettles are top-access pots sunk into the refinery floor and are refractory-lined. Each permitted hard lead receiving kettle operates at atmospheric pressure.

5.6.5.2 Hard Lead Refining Kettles

The five permitted hard lead refining kettles (Refining Kettle 1 (Unit 94), Refining Kettle 2 (Unit 95), Refining Kettle 3 (Unit 96), Refining Kettle 4 (Unit 97), and Refining Kettle 5 (Unit 98). The refining kettles are constructed of steel. Refining Kettles 1 through 5 each have a maximum inventory of 100 tons and are 105 inches in inner diameter with an inner height of approximately 86.5 inches. Refining Kettle 5 can be changed to a smaller Billet Kettle with a maximum permitted capacity of 30 tons. The 30 ton billet kettle has an inner diameter of 105 inches with an inner height of approximately 59.5 inches. The maximum treatment rate of these kettles is 80 to 90 tons per day combined for the five kettles. The location of the hard lead refining kettles is provided on Figure 5.1. Drawings detailing the 100 ton and 30 ton kettles are provided in Appendix A.

The kettles are top-access pots sunk into the refinery floor and are refractory-lined. Each permitted hard lead refining kettle operates at atmospheric pressure.

5.6.6 Kettle Containment

The permitted receiving and refining kettles also require secondary containment in the event that an incident occurs that causes molten lead to be released from the permitted kettles. The permitted kettles are located in the Smelter Building, which is a free standing building with reinforced concrete floors, concrete and sheet metal walls and a sheet metal roof. If a release occurs, the hot, molten lead immediately starts to solidify upon release from the permitted kettle and is contained within the confines of the Smelter Building. No additional secondary containment is required.

5.6.7 Ancillary Sumps

Two sumps which are ancillary to permitted units are located w ithin the lower level of the Smelter Building. An additional sump for non-contact cooling water is also located in the lower level of the Smelter Building. The three sumps are the North Kettle Gallery Sump, the South Kettle Gallery Sump and the Cooling Tower Return Sump. The location of each sump is provided in Figure 5.5. Information for each sump is summarized in Table 5.1.

The North Kettle Gallery Sump collects wash down water via three pipes from the main level of the Smelter Building. The North Kettle Gallery Sump is located north of the soft lead kettles in the lower level of the Smelter Building. North Kettle Gallery Sump is 4 feet wide by 6 feet long by 3 feet 4 inches deep and is constructed of reinforced concrete. The sump capacity is 598 gallons. The sump will be upgraded to stainless steel within concrete with leak detection. North

Kettle Gallery Sump has one pump which transfers wash down water to North Flue Dust Slurry Tank (Unit 31). The top of sump is flush with the surrounding floor. Additional information will be provided prior to upgrades.

The South Kettle Gallery Sump collects wash down water via three pipes from the main level of the Smelter Building. The South Kettle Gallery Sump is located south of the soft lead kettles in the lower level of the Smelter Building. South Kettle Gallery Sump is 4 feet 3 inches wide by 6 feet 3 inches long by 3 feet 7 inches deep and is constructed of reinforced concrete. The sump capacity is 711 gallons. The sump will be upgraded to stainless steel within concrete with leak detection. South Kettle Gallery Sump has one pump which transfers wash down water to South Flue Dust Slurry Tank (Unit 32). The top of sump is flush with the surrounding floor. Additional information will be provided prior to upgrades.

The Cooling Tower Return Sump collects non-contact return cooling water via seven pipes from the casting machine, furnace water jacket, slag tap and portable hogs. The Cooling Tower Return Sump is located south of the reverb furnace in the lower level of the Smelter Building. Cooling Tower Return Sump is 4 feet wide by 6 feet long by 4 feet 5 inches deep and is constructed of reinforced concrete. The sump capacity is 793 gallons. The sump will be upgraded to stainless steel within concrete with leak detection. Cooling Tower Return Sump has two pumps which transfers cooling water to the Cooling Tower. The top of sump projects one foot above the surrounding floor which prevents wash down water from entering the sump. Additional information will be provided prior to upgrades.

5.7 BAGHOUSE DUST SLURRY TANKS

5.7.1 Hazardous Waste Management

The permitted Flue Dust Slurry Tanks (Units 31 and 32) collect baghouse dust (K069) from screw conveyors at the base of each baghouse. Water is added in the permitted tanks and the resulting slurry is pumped to the permitted North Mud Tank (Unit 7) for processing.

5.7.2 North and South Flue Dust Slurry Tanks

The permitted Baghouse Dust Slurry Tanks are noted on Figure 5.1. These two identical tanks are identified as the permitted North Flue Dust Slurry Tank (Unit 31) and the permitted South Flue Dust Slurry Tank (Unit 32). The permitted Flue Dust Slurry Tanks have a maximum inventory of 1,393 gallons each and a gross capacity of 1,542 gallons each. The flow diagram for the entire emission control dust collection system is given in Drawing DM-005 (note that the original sumps were replaced with aboveground tanks in 1999) in Appendix A. Each permitted tank is capable of handling up to 100 gallons per minute of slurry having a specific gravity of 1.25. The permitted tanks are double-walled stainless steel tanks cast into reinforced concrete and equipped with leak detection system. A schematic for the permitted North Flue Dust Slurry

Tanks and permitted South Flue Dust Slurry Tank are presented on Attachment 5.19 and Attachment 5.20, respectively. Tank Assessment Reports for Units 31 and 32 are provided in Appendix H.

5.7.3 Secondary Containment

Secondary containment for the flue dust slurry tanks is provided by the double-walled tank and leak detection system. No additional secondary containment is required.

5.7.4 Ancillary Sumps

Four sumps which are ancillary to permitted units are used to collect wash-down water within the Baghouse Building. The four sumps are the Baghouse Building Sump 1, Baghouse Building Sump 2, proposed Baghouse Building Sump 3 and Baghouse Building Tire Wash. The location of each sump is provided in Figure 5.5. Information for each sump is summarized in Table 5.1.

Baghouse Building Sump 1 is located at the northeast corner of the Baghouse Building. Baghouse Building Sump 1 is 2 feet by 2 feet by 22 inches deep and is constructed of reinforced concrete. The sump capacity is 55 gallons. The sump will be upgraded to stainless steel within concrete with leak detection, similar to the sumps provided in the Class 2 Interim Status Modification provided in Appendix MM. Baghouse Building Sump 1 transfers wash down water to North Flue Dust Slurry Tank (Unit 31) and South Flue Dust Slurry Tank (Unit 32). Additional information will be provided prior to upgrades.

Baghouse Building Sump 2 is located at the southeast corner of the Baghouse Building. Baghouse Building Sump 2 is 2 feet by 2 feet by 22 inches deep and is constructed of reinforced concrete. The sump capacity is 55 gallons. The sump will be upgraded to stainless steel within concrete with leak detection, similar to the sumps provided in the Class 2 Interim Status Modification provided in Appendix MM. Baghouse Building Sump 2 transfers wash down water to North Flue Dust Slurry Tank (Unit 31) and South Flue Dust Slurry Tank (Unit 32). Additional information will be provided prior to upgrades.

Proposed Baghouse Building Sump 3 will be located at the southwest corner of the Baghouse Building. Baghouse Building Sump 3 will be 18.5 inches by 18.5 inches by 20.5 inches deep and will be constructed of stainless steel and concrete with leak detection. The sump capacity is 30 gallons. Baghouse Building Sump 3 will transfer wash down water to North Flue Dust Slurry Tank (Unit 31) and South Flue Dust Slurry Tank (Unit 32). Additional information is provided in the Class 2 Permit Modification provided in Appendix MM.

Baghouse Building Tire Wash is located at the northwest corner of the Baghouse Building. Baghouse Building Tire Wash is 14.5 feet by 3 feet by 10 inches deep; 18 feet by 3 feet by 10 inches deep; and 18 feet by 3 feet by 10 inches deep and is constructed of reinforced concrete.

The sump capacity is 943 gallons. The sump will be upgraded to stainless steel within concrete with leak detection, similar to the sumps provided in the Class 2 Interim Status Modification provided in Appendix MM. Baghouse Building Tire Wash transfers wash down water to North Flue Dust Slurry Tank (Unit 31) and South Flue Dust Slurry Tank (Unit 32). Additional information will be provided prior to upgrades.

5.8 OXIDATION TANKS

5.8.1 Hazardous Waste Management

The permitted Oxidation Tanks (Units 24 and 25) allow for the direct oxidation of the sulfite anion to the sulfate anion in the scrubber water, which is pumped from the SO_2 Scrubber Sump. With the addition of compressed air and caustic 50 percent solution, the oxidation process is completed so that the correct treatment windows can be created for proper metals removal later in the treatment process. The wastewater in the permitted Oxidation Tanks has a specific gravity of 1.05 to 1.1 and a pH of 9. From the Oxidation Tank system, the sodium sulfate solution is transferred to Equalization Tank 1 (Unit 52) and Equalization Tank 2 (Unit 53).

5.8.2 North and South Oxidation Tanks

The permitted Oxidation Tank system consists of two tanks designated as the permitted North Oxidation Tank (Unit 24) and permitted South Oxidation Tank (Unit 25). Both tanks are constructed of fiberglass-reinforced plastic (FRP). Each tank is 16 feet in diameter, and 35 feet high with a maximum inventory of 48,126 gallons and gross capacity of 52,638 gallons. The maximum treatment capacity of each permitted tank is 43,200 gallons per day. The tank schematic for the permitted Oxidation Tanks is presented on Attachment 5.11. Tank Assessment Reports for Units 24 and 25 are provided in Appendix H.

5.8.3 Secondary Containment for Oxidation Tanks

The permitted North Oxidation Tank and permitted South Oxidation Tank are contained within a concrete walled, secondary containment system measuring approximately 48 feet by 24 feet and 32 feet by 15.5 feet. Containment walls are 6 to 7.5 feet high. The concrete has an acid-resistant coating. The containment system is constructed to contain 79,527 gallons, which is sufficient to contain 100 percent of the largest tank maximum inventory (48,126 gallons) and a 25-year, 24-hour storm event. Secondary containment calculations are provided in Appendix GG. The location of secondary containment areas is provided on Figure 5-1. Accumulated liquids from any leaks, wash-down, or stormwater events are collected within the secondary containment area and are pumped via above-ground piping to the Equalization Tanks for processing.

5.8.4 Ancillary Sump

One sump which is ancillary to permitted units will be used to collect wash-down water and stormwater within the Oxidation Tank Area. The sump is the Oxidation Tank Area Sump. The location of the sump is provided in Figure 5.5. Information for the sump is summarized in Table 5.1.

Proposed Oxidation Tank Area Sump will be located at the north side of the Oxidation Tank Area. Oxidation Tank Area Sump will be 18.5 inches by 18.5 inches by 20.5 inches deep and will be constructed of stainless steel and concrete with leak detection. The sump capacity is 30 gallons. Oxidation Tank Area Sump will transfer wash down water and stormwater to North Flue Dust Slurry Tank (Unit 31) and South Flue Dust Slurry Tank (Unit 32). Additional information is provided in the Class 2 Permit Modification provided in Appendix MM.

5.9 MOBILE EQUIPMENT WASH STATION SUMP

The Mobile Equipment Wash Station and Mobile Equipment Wash Sump (Unit 35) is inactive and will be removed from service. Its closure will be implemented according to Section 12.0 upon the issuance of the permit. Closure is being performed to eliminate the outdoor cleaning of equipment as part of measures to improve ambient air quality. The location of the Mobile Equipment Wash Station is shown on Drawing 39-724-101 in the southeast corner of the west yard area adjacent to the garage. The area measures 20 feet wide and 30 feet long. The sump is 2 ft by 20 ft 8 inches by 2 feet deep and 4 feet by 4 feet by 4 feet deep. A sketch of Unit 35 is provided in the Tank Assessment Report provided in Appendix H. The purpose of the Mobile Equipment Wash Station was to wash mobile equipment prior to servicing. This concrete curbed unit had a collection sump and pump which transferred collected wash water to the Drop Out System. The sump within the Wash Station, the permitted Mobile Equipment Wash Sump (Unit 35) is a Hazardous Waste Management Unit and had a maximum inventory and gross capacity of 1,097 gallons. The schematic for the permitted Mobile Equipment Wash Sump is presented on Attachment 5.21.

5.10 DROP-OUT SYSTEM

5.10.1 Hazardous Waste Management

Located inside the permitted Central Container Storage Building (Unit 2), the permitted Drop-out System is used to remove solids generated during daily plant wash-down activities and during storm events to minimize the accumulation of solids in the on-site Stormwater Surface Impoundment (Unit 78). Figure 5.4 depicts the permitted Drop-out System process flow diagram. The major components of the Drop-out System include a double-walled stainless steel Pump Sump (Unit 46) containing two multi-capacity pumps, four Settling Tanks (Units 47 through 50), aboveground piping between the tanks and pumps, catch basins and underground conveyance piping. The Pump Sump and Settling Tanks are permitted under 66264.190.

Daily wash-down water and rain water collected in the plant's double lined stormwater system (catch basins and underground piping system) is collected within the Pump Sump (Unit 46). Two multi-capacity pumps (approximately 100, and 1,000 gallon per minute) transfer the collected water into one of four identical aboveground tanks (Settling Tank Unit 1 (Unit 47), Settling Tank 2 (Unit 48), Settling Tank 3 (Unit 49), and Settling Tank 4 (Unit 50)).

The permitted Settling Tanks receive the collected water from the permitted Pump Sump. In the permitted Settling Tanks, the solids are removed from the water stream using gravity and collected at the bottom of the permitted tank. The process is the same for all four permitted Settling Tanks where the solids are removed using gravity. Upon filling, the water stream from each of the four permitted tanks overflow into the double-lined, leak-detected, on-site Stormwater Surface Impoundment through four 8-inch diameter overflow pipes (one pipe for each permitted tank). It is expected that the water stream leaves the permitted Drop-out System and enters the Stormwater Surface Impoundment only during heavy storm events.

5.10.2 Drop Out System Units

5.10.2.1 **Pump Sump**

The permitted Pump Sump (Unit 46) is located on the southwestern edge of the roofed, permitted Central Container Storage Building as shown on Drawing S-1 included in Appendix B. The permitted Pump Sump is a double walled stainless steel lined tank cased into concrete. The Pump Sump is 5 feet by 9 feet by 12 feet 11.5 inches high and has a maximum inventory and gross capacity of 3,842 gallons. The permitted sump is equipped with two pumps with the capacities of approximately 100, and 1,000 gallon per minute that are activated by a water level sensor. This permitted Pump Sump collects daily wash-down water and stormwater having a specific gravity of about 1.0, a pH between 6.5 to 7.5 (neutral), and operates at atmospheric pressure. The permitted sump and pump system are able to handle flows between 100 and 1,100 gallons per minute. Attachment 5.22 provides the schematic for the Pump Sump. The Tank Assessment Report for Unit 46 is provided in Appendix H.

The double-lined and leak detected catch basins and underground piping which collect and convey stormwater to the Pump Sump are shown on the Stormwater System As-Built Survey in Appendix A. Detailed information for the catch basins and underground piping is provided in Appendix JJ, Interim Status Modification for Stormwater Replacement System and Stormwater Removal and Replacement System Completion Reports.

5.10.2.2 **Settling Tanks**

The four permitted Settling Tanks (Settling Tank Unit 1 (Unit 47), Settling Tank 2 (Unit 48), Settling Tank 3 (Unit 49), and Settling Tank 4 (Unit 50)) each have a maximum inventory of 8,763 gallons and gross capacity of 9,057 gallons and are constructed of high density crosslink polyethylene resin (XLPE). Each tank is 10 feet in diameter with height of approximately 15.5 feet. The maximum throughput capacity of these tanks is 1,600 gallons per minute or 2,300,000 gallons per day. A profile of the permitted Settling Tanks and the overflow pipe are presented on Drawings S-3 and S-4 in Appendix B, respectively. Attachment 5.23 depicts the schematic for the permitted Settling Tanks. Tank Assessment Reports for Units 47 through 50 are provided in Appendix H.

Each permitted Settling Tank is elevated on a support structure that is supported by a reinforced concrete foundation. Each permitted Settling Tank operates at atmospheric pressure and manages a water stream with a specific gravity of about 1. No overflow protection is required since the design of the permitted tanks is such that each permitted tank overflows into the Stormwater Surface Impoundment as the water reaches a certain level. The bottom of each permitted Settling Tank is sloped to facilitate sludge removal. Detailed drawings for the individual permitted Tanks are located in Appendix B.

5.10.3 Secondary Containment for the Drop-out System

The Pump Sump is contained in a concrete vault constructed of 12-inch thick, steel reinforced concrete walls with waterstops as shown on Drawing S-3 in Appendix B. Drawings S-6 and S-8 in Appendix B show the design details for the vault. The catch basins and underground piping have secondary containment in the form of an EPDM wrap around the HDPE primary pipe. Secondary containment at the stormwater manholes is provided by a concrete vault around the HDPE primary manhole. Leak detection is provided at the stormwater manholes.

Secondary containment for the Settling Tanks is provided by the concrete floor and walls of the Drop-out System. The secondary containment is 19 feet by 71.5 feet with 1 foot high walls. The maximum containment volume is 11,662 gallons, which is greater than the largest tank (8,763 gallons). Secondary containment calculations are provided in Appendix GG. The location of secondary containment areas is provided on Figure 5-1.

5.11 STORMWATER SURFACE IMPOUNDMENT

The Stormwater Surface Impoundment (Unit 78) was previously referred to as the Stormwater Retention Pond and is discussed in Section 15.0. The Stormwater Surface Impoundment is proposed for permitting as a surface impoundment (66264.220) as sediment accumulating in the impoundment has on occasion been characterized as hazardous for lead.

5.12 PERMITTED TANK ASSESSMENTS

The original permitted tanks and sumps at the facility have been certified in accordance with Title 22, Article 9 and Article 10 of CCR. A list of permitted tanks and sumps, their material of construction, and the contents managed are summarized in Section 1.0, Attachment A-2 and are located as shown on Figure 5.1.

A comprehensive on-site inspection for all tanks has been performed. With the exception of Tank 12 and 24, an assessment report and written statement, signed by an independent, qualified P.E. registered in California, in accordance with CCR 66270.11(d), attesting that the tanks are suitably designed to achieve compliance with CCR 66264.191 and 66264.192 are provided in Appendix H. The reports include drawings or sketches for each tank, and calculations addressing sliding, overturning and sloshing during a seismic event. Following completion of field activities, the assessment reports for Tank 12 and 24 will be submitted to DTSC in accordance with the agreed schedule. The assessment reports for Tanks 13, 50, 52, and 53 will be revised following implementation of the Underground Pipe Work Plan provided in Appendix LL. Tank assessment reports for Tanks 57, 58, 59, 60 and 61 will be revised following construction of the splash guard wall as discussed in Section 5.4.2.2.

Follow-up assessments will be conducted and submitted to DTSC where applicable.

5.13 TANK GENERAL OPERATION REQUIREMENTS

Tanks at the facility are operated in compliance with 66264.194. The tanks, equipment and secondary containment systems are compatible with the waste managed by the tank. Spill prevention and overfill prevention controls are used where applicable. Specific controls for each tank are provided in the individual tank schematics in Attachment A.

No pressurized tanks are utilized for processing hazardous waste. The regulated tanks at the facility are non-pressurized, open-top and closed-top tanks. No special precautions are necessary for cleaning. About once per year or more often as needed the process tanks are pumped out and cleaned.

5.14 TANK INSPECTIONS

Tank inspections are conducted in compliance with 66264.195 and are discussed in Section 7.4. Tank reassessment will be conducted as recommended in the tank assessment.

5.15 TANK REPLACEMENT

DTSC requested that Exide include a list of tanks that could possibly need to be replaced between submission of this permit application and issuance of the RCRA Permit. Although Unit

52 has passed the most recent inspection and leak testing, based exclusively on recommended/estimated service life as listed in the Tank Certification Reports, Unit 52 may require replacement before 2016. Unit 67, Acid Overflow Tank B, is currently out of service and will require replacement prior to being returned to service.

Exide will continue to maintain and operate all tanks in accordance with their manufacturer recommendations and in the event any tanks are damaged, fail periodic inspections, or no longer function as intended, Exide will request DTSC approvals for removal and replacement.

Additional information will be submitted prior to tank replacement, if replacement is necessary.

5.16 WEST YARD TRUCK WASH

The West Yard Truck Wash (Unit 87) is located in the West Yard as shown on Figure 5.1. The West Yard Truck Wash is a concrete lined sump which collects wash water from decontaminating vehicles prior to leaving the facility's Bandini Boulevard entrance. The water is transferred to Battery Dump Bin Sump (Unit 5). The West Yard Truck Wash is proposed for permitting as a hazardous waste tank. The West Yard Truck Wash will be upgraded to be stainless steel within concrete with leak detectio Additional information will be provided prior to upgrades. Figures for the existing truck wash are provided in Appendix A.

The West Yard Truck Wash is 41 feet 6 inches by 14 feet 6 inches by 2 feet 3 inches deep and 16 inches by 16 inches by 16 inches. The maximum inventory and gross capacity is 10,145 gallons.

5.17 NEPTUNE SCRUBBER TANK (PROPOSED)

The proposed Neptune Scrubber Tank (Unit 88) will be located in the Baghouse Building. An approximate location is shown on Figure 5.1. The Neptune Scrubber Tank is proposed to collect liquid from the facility air scrubbers in lieu of the Neptune Scrubber Sump. The collected liquid will be transferred to North Oxidation Tank (Unit 24) and South Oxidation Tank (Unit 25). The tank has not yet been designed and has been assumed to have a capacity of 2,000 gallons for closure cost estimating purposes.

5.18 ANCILLARY SUMPS

In addition to the aforementioned ancillary sumps at the Baghouse Building, Desulfurization Building and Oxidation Tank Area, four sumps which are ancillary to permitted units are present at the facility. These sumps are the Water Softener Building Sump, Neptune Scrubber Sump, Caustic Tank Sump, and Railroad Sump. The location of the sumps are provided in Figure 5.5. Information for the sumps is summarized in Table 5.1.

The Water Softener Building Sump is located at the southeast corner of the Water Softener Building. The Water Softener Building Sump is 3 feet by 3 feet by 4 feet deep and is constructed of concrete. The sump capacity is 269 gallons. The sump will be upgraded to stainless steel and concrete with leak detection. Water Softener Building Sump transfers wash down water to Equalization Tank 1 (Unit 52) and Equalization Tank 2 (Unit 53). Additional information will be submitted prior to upgrades.

The Neptune Scrubber Sump is located in the Baghouse Building. The Neptune Scrubber Sump is 7.3 feet by 15.7 feet by 4.3 feet deep and is constructed of concrete. The sump capacity is 3,687 gallons. The sump will be upgraded to stainless steel and concrete with leak detection. Neptune Scrubber Sump transfers air scrubber water to North Oxidation Tank (Unit 24) and South Oxidation Tank (Unit 25). Additional information will be submitted prior to upgrades.

The Caustic Tank Sump is located east of the Caustic Tank, south of the Reverb Furnace Feed Room. The Caustic Tank Sump is 34 inches by 34 inches by 50 inches deep and is constructed of 304 stainless steel liner within concrete. The sump capacity is 250 gallons. The sump will be upgraded to double lined with leak detection. Caustic Tank Sump transfers wash down water and stormwater to RMPS Floor Sump (Unit 6). Additional information will be submitted prior to upgrades.

The Railroad Sump is located at the railroad tracks at the east facility boundary. The Railroad Sump is 32.4 feet by 2 feet by 4.8 feet deep; 3.8 feet by 3.8 feet by 9.3 feet deep and is constructed of concrete. The sump capacity is 3,331 gallons. The sump will be upgraded to stainless steel and concrete with leak detection. Railroad Sump transfers wash down water and stormwater to Equalization Tank 1 (Unit 52) and Equalization Tank 2 (Unit 53). Additional information will be submitted prior to upgrades.

5.19 TRAILER STAGING AREA

5.19.1 Hazardous Waste Management

Exide operates the Trailer Staging Area (Unit 103) as a container s torage area. The Trailer Staging Area is a temporary storage area for trailers containing dry plastic chips from Plastic Centrifuge No. 1 (Unit 80) and proposed Plastic Centrifuge No. 2 (Unit 81) prior to transport for off-site recycling. The trailer is the container. The plastic chips are dry and do not contain free liquids.

The Trailer Storage Area is also used for temporary storage of trailers of spent batterie

5.19.2 Use and Management of Containers (66264.171)

The trailer is filled with dry plastic chips at the RMPS Building. The trailer is inspected for leaks prior to leaving the RMPS Buildin Trailers with leaks are not permitted to leave the RMPS Building. Trailers of dry plastic chips are moved to the Trailer Staging Area for temporary storage prior to off-site recycling.

5.19.3 Compatibility of Waste with Containers (66264.172)

The plastic is polypropylene which has been rinsed and the rinse water removed by a centrifuge. The plastic is dry in the trailer. The trailers are constructed of steel with a wood floor and are compatible with the plastic contents. The trailers have been approved by DOT for shipping of plastic. A letter from DOT approving the trailers for transport of plastic is provided in Appendix NN.

5.19.4 Management of Containers (66264.173)

The trailer is filled with dry plastic chips within the RMPS Building. The trailer is inspected for leaks prior to leaving the RMPS Building. Trailers with leaks are not permitted to leave the RMPS Building. Trailers of dry plastic chips are moved to the Trailer Staging Area for temporary storage prior to off-site recycling. Trailers of dry plastic chips are removed from the area or emptied within 10-day

Trailers of spent batteries are also emptied within 10-day

Each plastic trailer is DOT-compliant and has interior dimensions of 105 inches high, 92 inches wide and 44.5 feet long. The maximum capacity of each trailer is 111 cubic yards. A maximum of twelve trailers of plastic are stored in the Trailer Staging Area. A maximum of fifteen trailers of plastic or batteries are stored in the Trailer Staging Area. The location of the Trailer Staging Area is provided on Figure 5.1. The layout of the Trailer Staging Area is provided in Appendix A. The Trailer Staging Area is paved with asphalt.

5.19.5 Inspections (66264.174)

The trailers are parked in parking spaces. A minimum of 24-inches of aisle space is maintained between and around each trailer. A figure showing the Trailer Staging Area layout is provided in Appendix A. The 24-inch aisle space is maintained to allow inspection for leaking containers. 24-inch wide aisles are adequate for personnel to walk unobstructed between rows of pallets and allow for inspection of each pallet. Inspections are performed on a weekly basis and documented on the Facility Inspection Logs provided in Appendix L.

When a leaking plastic trailer is found, the trailer is returned to RMPS for additional separation of the plastic and rinse wate

5.19.6 Containment (66264.175)

The facility utilizes one (1) Container Storage Area for the storage of trailers of dry plastic. The Trailer Storage Area is paved with asphalt and does not have a roof. No upgrades are proposed to the Trailer Storage Area. Soil sampling data from the RCRA Facility Investigation and the Stormwater Removal and Replacement project will be used to establish current soil condition

The Trailer Storage Area is approximately 21,358 square feet. The Trailer Storage Area has a maximum storage capacity of twelve trailers of plastic, or approximately 1,332 cubic yards of plastic. The trailers contain dry materials only; therefore, secondary containment does not apply. Stormwater falling within the area is managed by the facility's Stormwater Management System.

TABLE

TABLE 5.1
ANCILLARY SUMP DESCRIPTIONS

Location	Description	Content	Waste Codes		Tank/ Unit Size	Tank/Unit Material	Maximum Capacity	Structural Certification	Permit Status
Baghouse Building	Baghouse Building Sump 1	Wash-Down Water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	24 inches by 24 inches by 22 inches deep	Reinforced Concrete (Stainless steel and concrete after upgrade)	55 gallons	to be prepared following upgrades.	Application Pending, Ancillary to Unit 31 and 32
Baghouse Building	Baghouse Building Sump 2	Wash-Down Water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	24 inches by 24 inches by 22 inches deep	Reinforced Concrete (Stainless steel and concrete after upgrade)	55 gallons	to be prepared following upgrades.	Application Pending, Ancillary to Units 31 and 32
Baghouse Building	Baghouse Building Sump 3 (Proposed)	Wash-Down Water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	18.5 inches by 18.5 inches by 20.5 inches deep	Stainless steel and concrete	30 gallons	to be prepared following installation.	Proposed. Ancillary to Units 31 and 32
Baghouse Building	Baghouse Building Tire Wash	Wash-Down Water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	14.5 ft by 3 ft by 10 inch deep; 18 ft by 3 ft by 10 inch deep; 18 ft by 3 ft by 10 inch deep	Concrete (Stainless steel and concrete after upgrade)	943 gallons	to be prepared following upgrades.	Application Pending, Ancillary to Units 31 and 32
Oxidation Tank Area	Oxidation Tank Area Sump (Proposed)	Wash-Down Water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	18.5 inches by 18.5 inches by 20.5 inches deep	Stainless steel and concrete	30 gallons	to be prepared following installation.	Proposed, Ancillary to Units 31 and 32
South Yard	Water Softener Building Sump	Wash-Down Water, water softener backwash	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 ft by 3 ft by 4 ft deep	Concrete (Stainless steel and concrete after upgrade)	296 gallons	to be prepared following upgrades.	Application Pending, Ancillary to Units 52 and 53.
Baghouse Building	Neptune Scrubber Sump	Wastewater, Sodium sulfate solution	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	7.3 ft by 15.7 ft by 4.3 ft deep	Concrete (Stainless steel and concrete after upgrade)	3,687 gallons	to be prepared following upgrades.	Application Pending, Ancillary to Units 24 and 25
South Yard	Caustic Tank Sump	Wash-down water, stormwater	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	34 inches by 34 inches by 50 inches	304 stainless steel liner within concrete	250 gallons	to be prepared following upgrades.	Application Pending, Ancillary to Unit 6
South Yard	Railroad Sump	Wash-down water, stormwater	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	32.4 ft by 2 ft by 4.8 ft deep; 3.7 ft by 3.8 ft by 9.3 ft	Concrete (Stainless steel and concrete after upgrade)	3,331 gallons	to be prepared following upgrades.	Application Pending, Ancillary to Units 52 and 53
Desulfurization	Mud Tank Area Sump 1 (Proposed)	Wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	18.5 inches by 18.5 inches by 20.5 inches deep	Stainless steel and concrete	30 gallons	to be prepared following installation.	Proposed, Ancillary to Units 7, 8 and 9
Desulfurization	Mud Tank Area Sump 2 (Proposed)	Wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	18.5 inches by 18.5 inches by 20.5 inches deep	Stainless steel and concrete	30 gallons	to be prepared following installation.	Proposed, Ancillary to Unit 5
Smelter Building	North Kettle Gallery Sump	Wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 feet 4 inches deep, 6 feet long, 4 feet wide	Concrete (stainless steel and concrete after upgrade)	598 gallons	to be prepared following upgrades	Application Pending. Ancillary to Unit 31
Smelter Building	South Kettle Gallery Sump	Wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 feet 7 inches deep, 6 feet 3 inches long, 4 feet 3 inches wide	Concrete (stainless steel and concrete after upgrade)	712 gallons	to be prepared following upgrades	Application Pending. Ancillary to Unit 32
Central Container Storage Area (Unit1)	Acid Collection Sump #1	Acid, wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 ft diameter, 3 ft deep; 25.25 inch diameter, 8 inches deep	Concrete with stainless steel liner	175gallons	Not applicable	Application Pending, Ancillary to Unit 1, Units 52 and 53.
Central Container Storage Building (Unit1)	Acid Collection Sump #2	Acid, wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 ft diameter, 3 ft deep; 25.25 inch diameter, 8 inches deep	Concrete with stainless steel liner	175 gallons	Not applicable	Application Pending, Ancillary to Unit 1, Units 52 and 53.
Southeast corner of Cooling Tower	Acid Collection Sump #3	Acid, wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 ft diameter, 3 ft deep; 25.25 inch diameter, 8 inches deep	Concrete with stainless steel liner	175 gallons	Not applicable	Application Pending, Ancillary to Units 1, 2 and 3, Units 52 and 53.
West Container Storage Building #2 (Unit 3)	Acid Collection Sump #4	Acid, wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 ft diameter, 3 ft deep; 25.25 inch diameter, 8 inches deep	Concrete with stainless steel liner	175 gallons	Not applicable	Application Pending, Ancillary to Unit 3, Units 52 and 53.
West Container Storage Building #1 (Unit 2)	Acid Collection Sump #5	Acid, wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 ft diameter, 3 ft deep; 25.25 inch diameter, 8 inches deep	Concrete with stainless steel liner	175 gallons	Not applicable	Application Pending, Ancillary to Unit 2, Units 52 and 53.
West Container Storage Building #1 (Unit 2)	Acid Collection Sump #6	Acid, wash-down water	132, 181, 721, 722, 723, 724, 791, 792, 171, 172	D002, D004, D005, D006, D007, D008, D010, K069	3 ft diameter, 3 ft deep; 25.25 inch diameter, 8 inches deep	Concrete with stainless steel liner	175 gallons	Not applicable	Application Pending, Ancillary to Unit 2, Units 52 and 53.

FIGURES

HAZARDOUS WASTE MANAGEME[redacted]

Container Storage

1 Central Container Storage Building
2 West Container Storage Building #1
3 West Container Storage Building #2
103 Trailer Staging Area

RMPS

5 Battery Dump Bin Sump
6 RMPS Floor Sump
7 North Mud Tank
8 Center Mud Tank
9 South Mud Tank
10 South Acid Storage Tank
12 Paste Thickening Unit (Santa Maria)
13 Sink/Float Separator
14 Recycle Tank
40 RMPS Hammer Mill
41 Waste Acid Circulation Tank
42 East Elutriation Column
43 West Elutriation Column
45 RMPS Filter Press Unit B
66 Acid Overflow Tank A
67 Acid Overflow Tank B
68 Clarifying Acid Filter Press
70 Oscillating Pan Feeder
79 Surge Tank (Proposed)
80 Centrifuge No. 1
81 Centrifuge No. 2 (Proposed)
82 RMPS Acid Storage Tank (Proposed)
83 Shredder (Proposed)
84 Vibrating Screen (Proposed)
85 Industrial Cell Extraction (Proposed)
86 Industrial Cell Shredder (Proposed)

Oxidation Tanks

24 North Oxidation Tank
25 South Oxidation Tank

Flue Dust Slurry Tanks

31 North Flue Dust Slurry Tank
32 South Flue Dust Slurry Tank

Miscellaneous

35 Mobile Equipment Wash Station
87 West Yard Truck Wash

44 [redacted]
52 [redacted]
53 [redacted]
54 [redacted]
55 [redacted]
56 [redacted]
57 [redacted]
58 [redacted]
59 [redacted]
60 Reaction Tank 4
61 Reaction Tank 5
62 WWTP Sump
63 WWTP Acid Storage Tank
71 #1 Sand Filter
72 #2 Sand Filter
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99 [redacted]
100 Refining Kettle 7
101 Refining Kettle 8
102 Refining Kettle 9

Containment Building

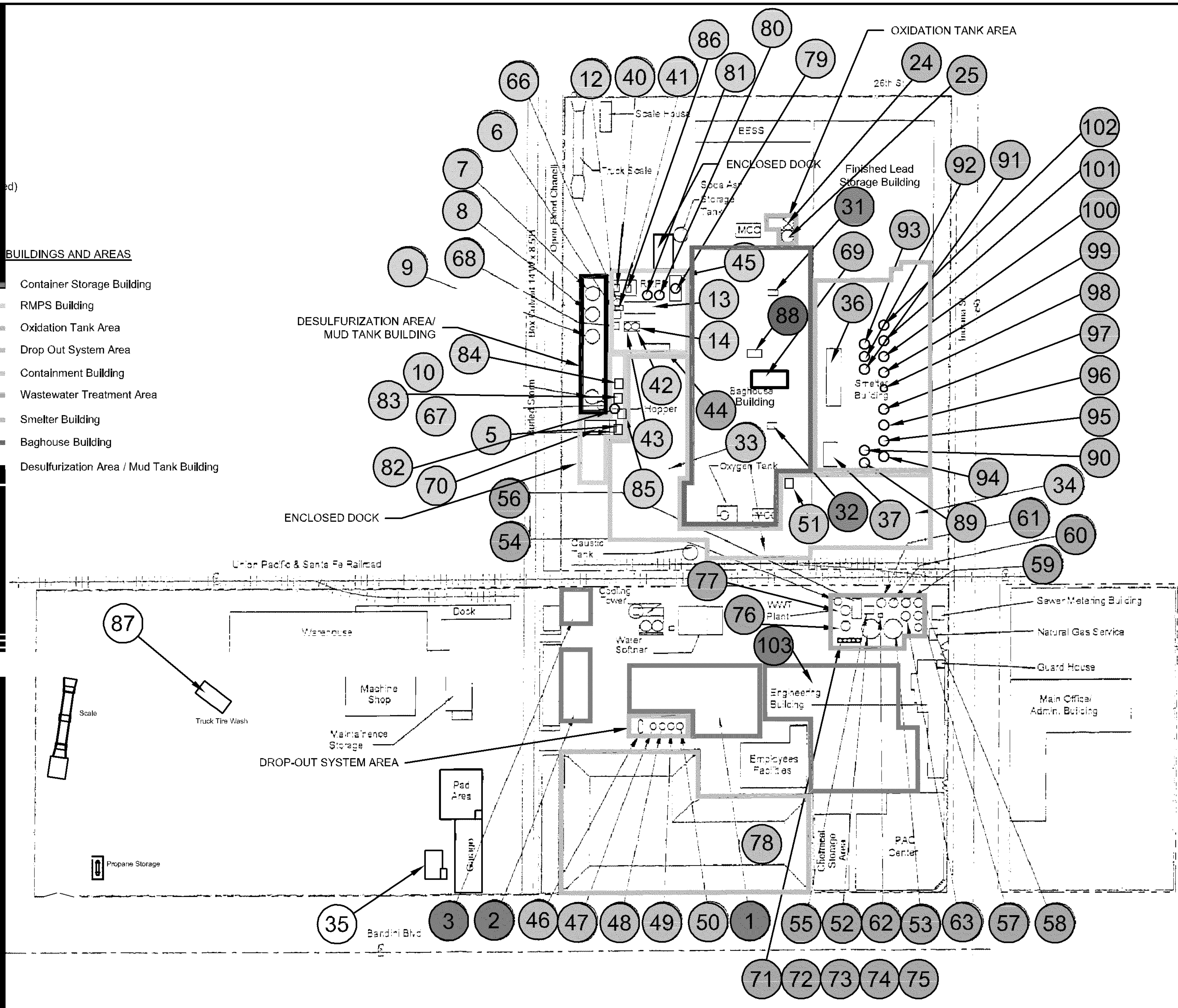
33 Reverb Furnace Feed Room
34 Blast Furnace Feed Room
51 Truck Wash Sump

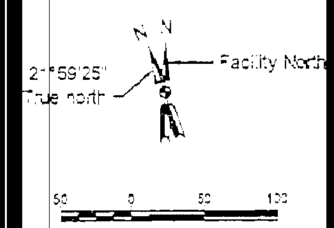
Baghouse Building

88 Neptune Scrubber Tank (Pro[redacted]ed)

BUILDINGS AND AREAS

- Container Storage Building
- RMPS Building
- Oxidation Tank Area
- Drop Out System Area
- Containment Building
- Wastewater Treatment Area
- Smelter Building
- Baghouse Building
- Desulfurization Area / Mud Tank Building





NOTE:

1. ADAPTED FROM LAKE ENGINEERING FIGURE 5.2 FROM PART B APPLICATION, MAY 2002.
2. SECONDARY CONTAINMENT AREAS ARE THE BUILDING BOUNDARIES, SEE APPENDIX GG.
3. 'UNIT PROCESS' INDICATES THE PROCESS IN WHICH A UNIT IS USED, NOT ITS LOCATION.
4. UNIT SIZES AND LOCATIONS ARE APPROXIMATE
5. SEE APPENDIX A FOR ADDITIONAL DRAWINGS

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FACILITY PLOT PLAN

Exide Technologies
Vernon, California

SCALE: N.T.S.		Figure
PROJECT NUMBER: 2013-2993-01		5.1
DATE: 8/4/14, Revised 8/19/14		

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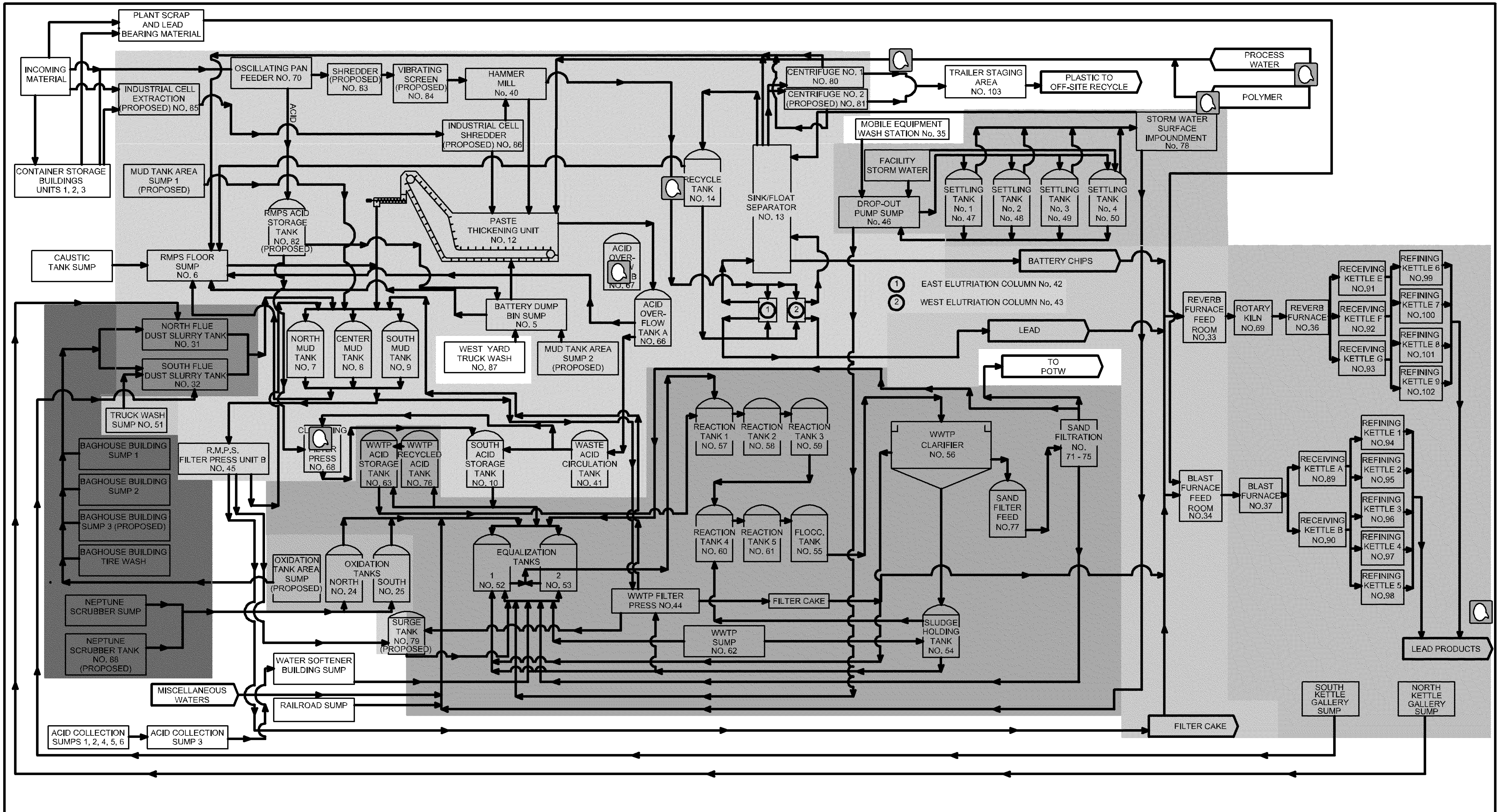

NOTE:

1. ADAPTED FROM LAKE ENGINEERING FIGURE 5.4 FROM PART B APPLICATION, MAY 2002.
2. COLOR REPRESENTS FACILITY PROCESS, NOT LOCATION.

FACILITY PROCESS

- RMPS
- WWTP
- BAGHOUSE FLUE DUST
- SMELTER BUILDING
- CONTAINMENT BUILDINGS
- SCRUBBER FEED
- DROPOUT SYSTEM
- BAGHOUSE BUILDING

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PROCESS FLOW DIAGRAM

Exide Technologies
Vernon, California

SCALE:	N.T.S.	Figure
PROJECT NUMBER: 2013-2993-01		5.2
DATE:	8/4/14	

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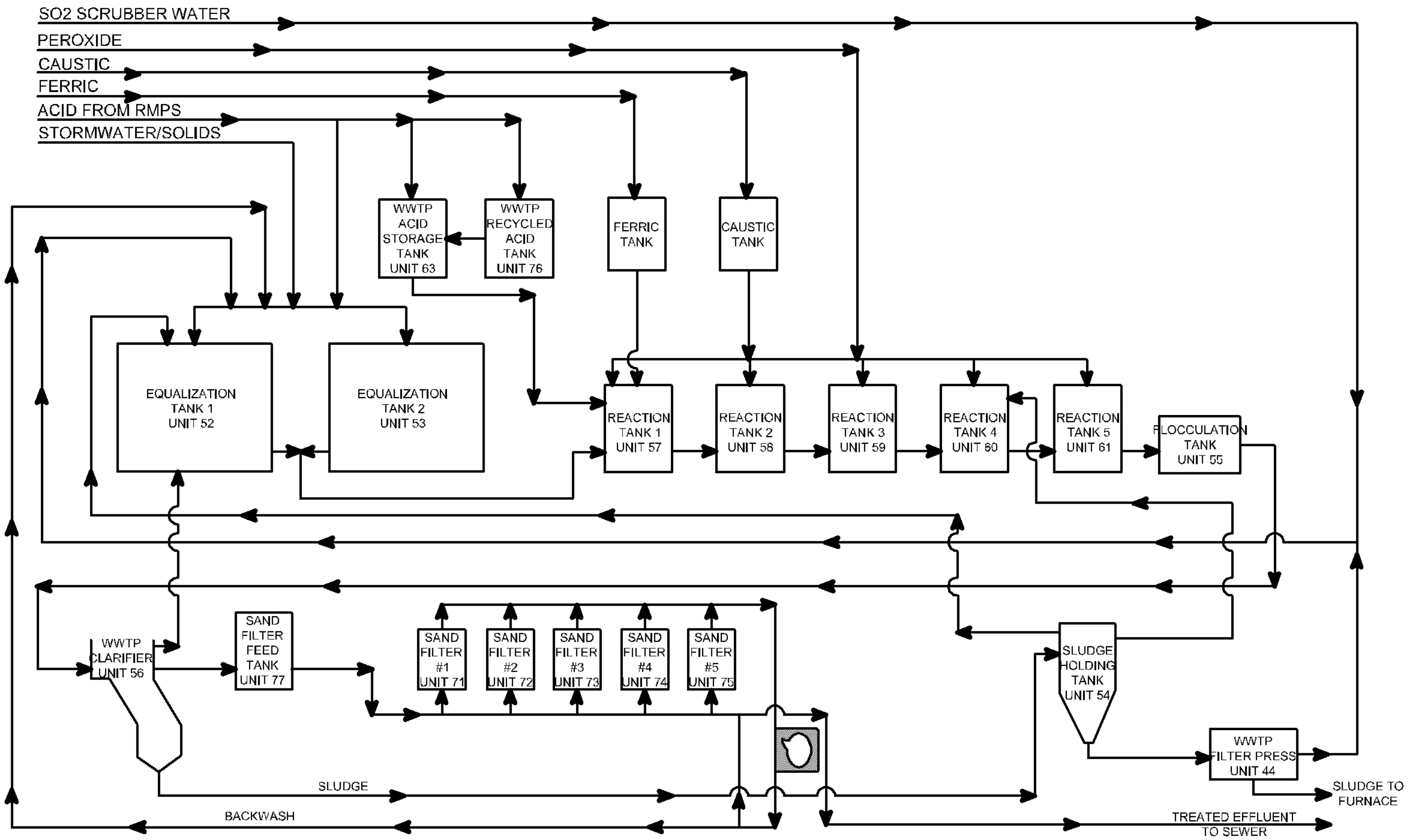

NOTE:

1. ADAPTED FROM MACTEC FIGURE 5.5 FROM PART B APPLICATION, JANUARY 2006

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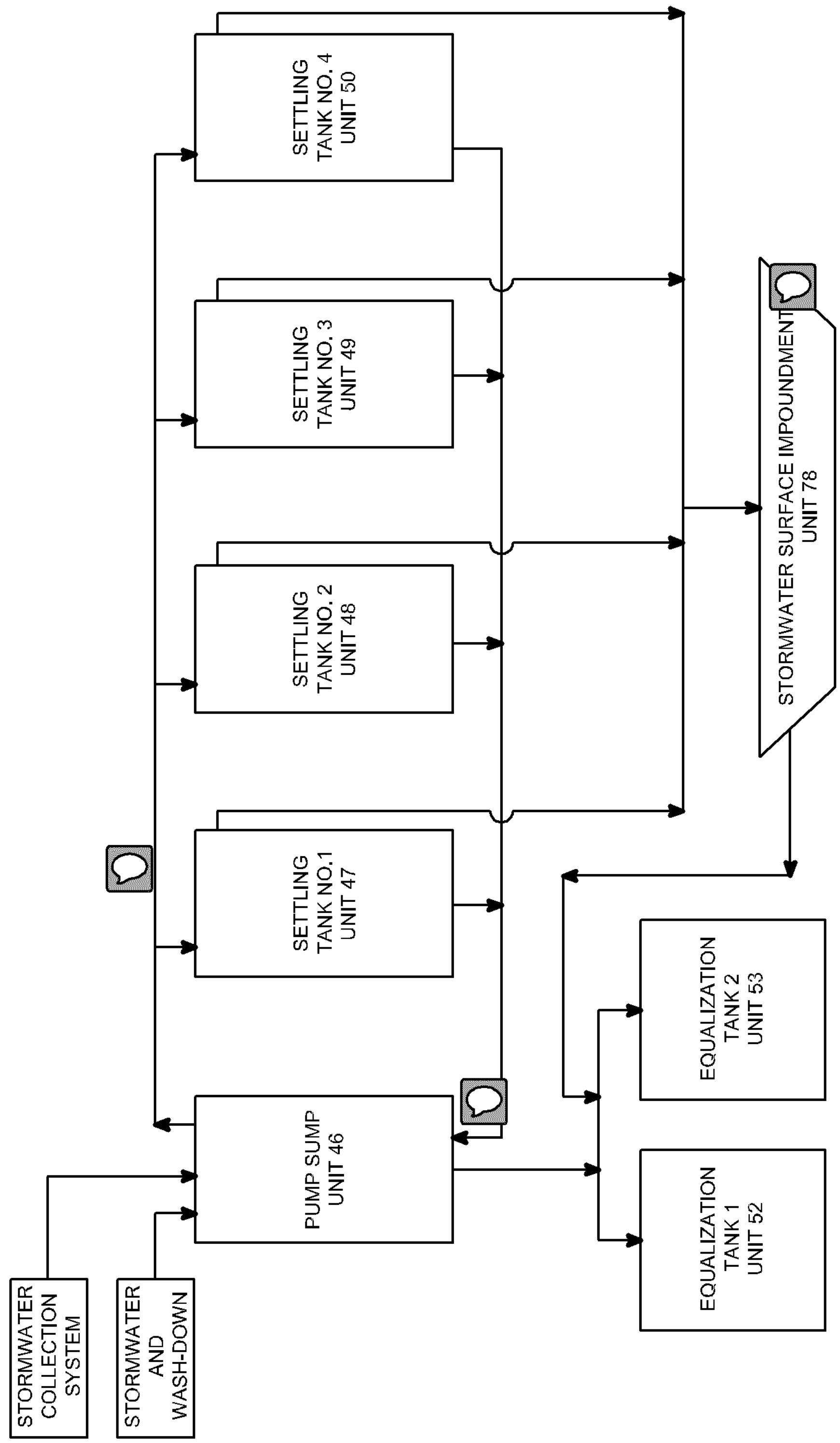
WWTP PROCESS FLOW DIAGRAM
Exide Technologies
Vernon, California

SCALE: n.t.s.

PROJECT NUMBER: 2013-2993-01

DATE: 8/4/14

FIGURE 5.3



NOTE:

1. ADAPTED FROM LAKE ENGINEERING FIGURE 5.6 FROM PART B APPLICATION, MAY 2002.

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DROP-OUT SYSTEM

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SCALE:	n.t.s.	FIGURE 5.4
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	

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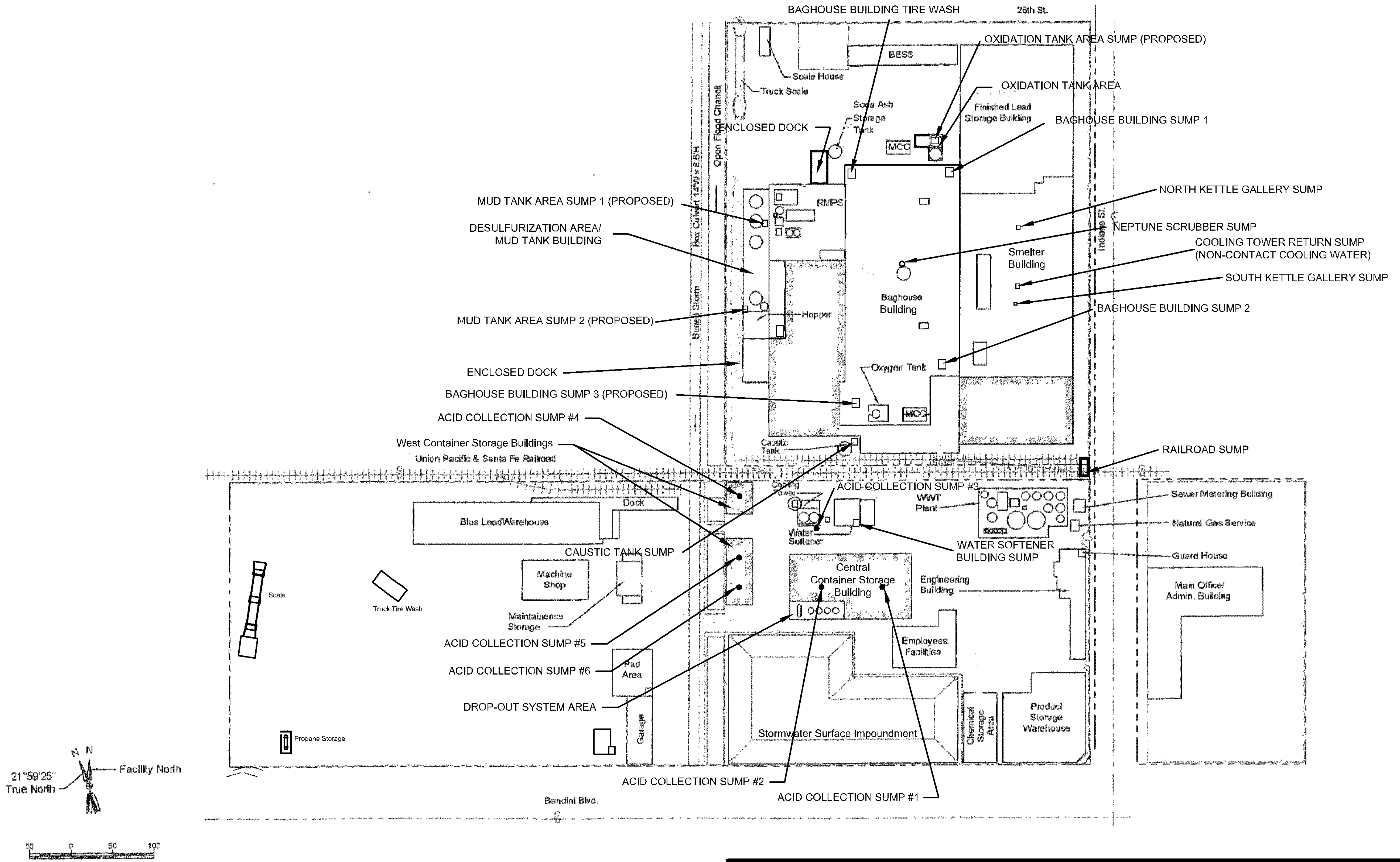

NOTE:

1. ADAPTED FROM LAKE ENGINEERING FIGURE 5.2 FROM PART B APPLICATION, MAY 2002.
2. SUMP SIZES AND LOCATIONS ARE APPROXIMATE

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ANCILLARY SUMPS

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SCALE: N.T.S.		Figure
PROJECT NUMBER: 2013-2993-01		5.5
DATE: 8/4/14		

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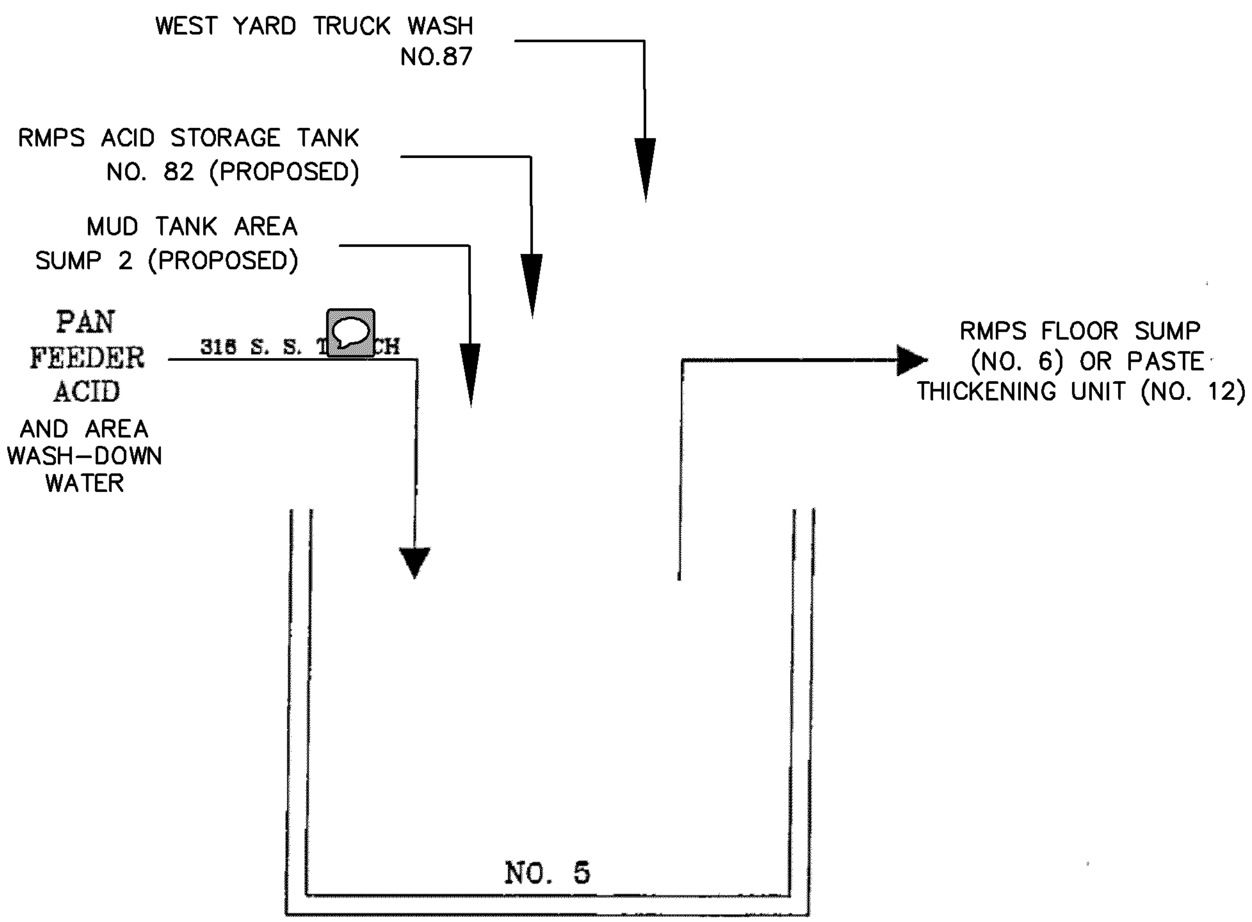
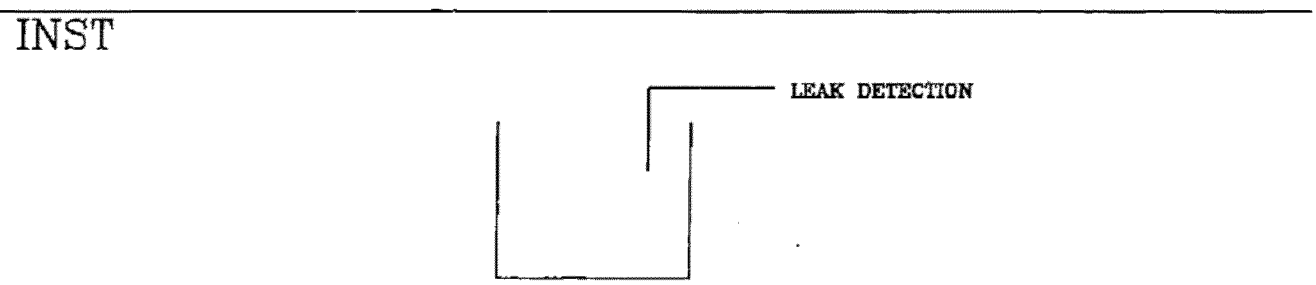
ATTACHMENT A

Individual Tank Schematics





NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.1 FROM PART B APPLICATION, MAY 2002.

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BATTERY DUMP BIN SUMP

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SCALE:	n.t.s.	ATTACHMENT 5.1
PROJECT NUMBER: 2013-2993-01		
DATE:	8/4/14	

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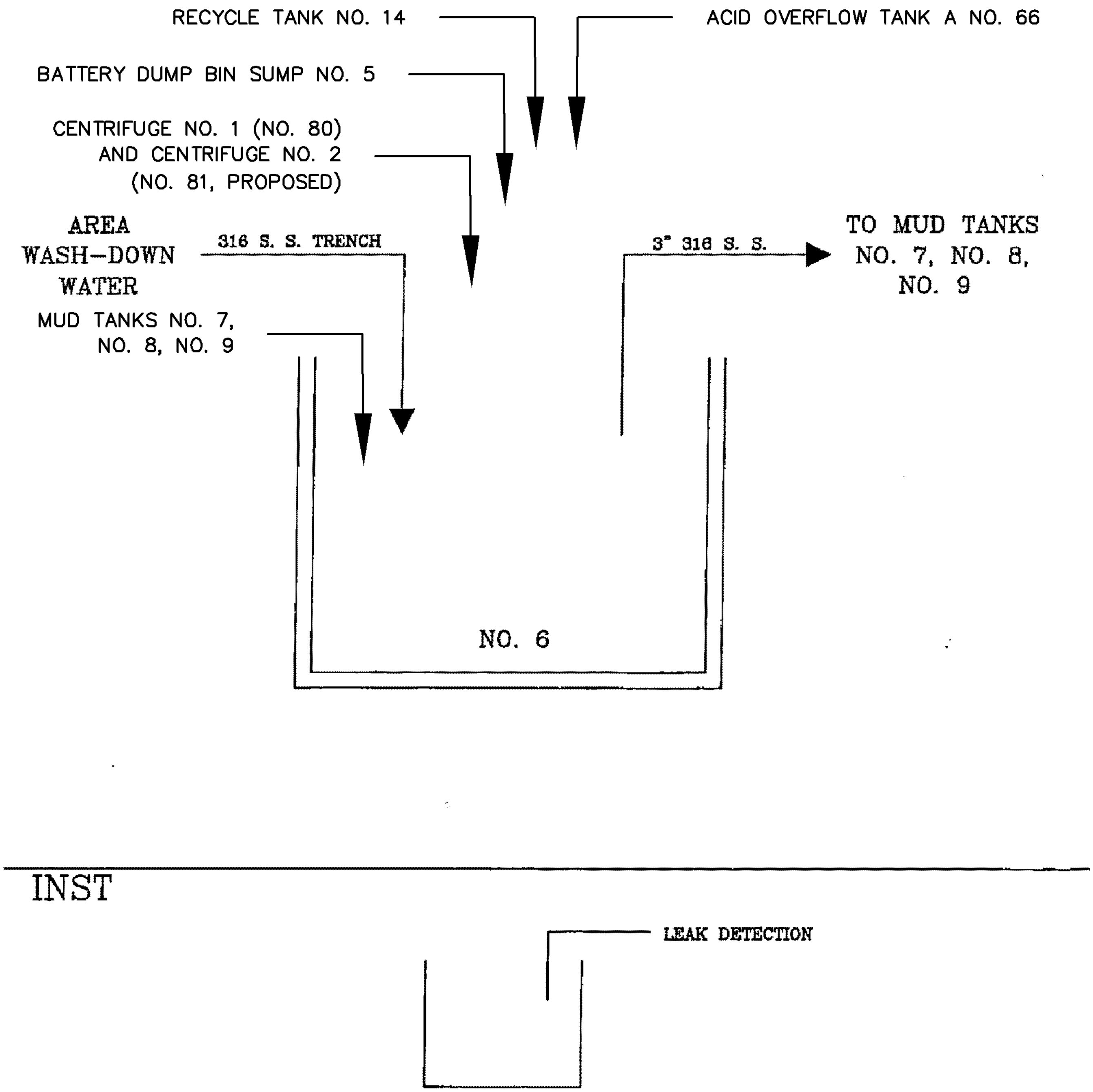

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.2 FROM PART B APPLICATION, MAY 2002.

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RMPS FLOOR SUMP

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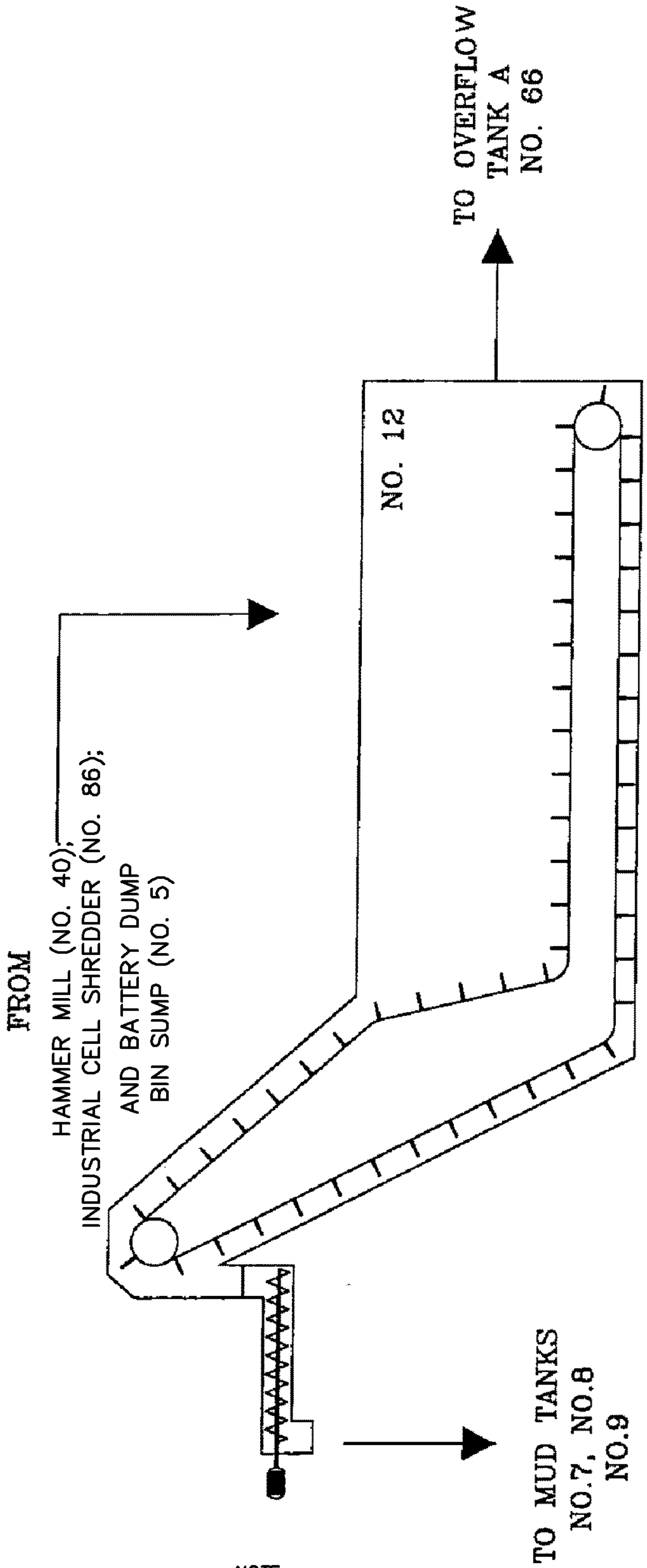
SCALE:	n.t.s.	ATTACHMENT 5.2
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	



NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.3 FROM PART B APPLICATION, MAY 2002.

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PASTE THICKENING UNIT

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SCALE:	n.t.s.	ATTACHMENT 5.3
PROJECT NUMBER: 2013-2993-01		
DATE:	8/4/14	

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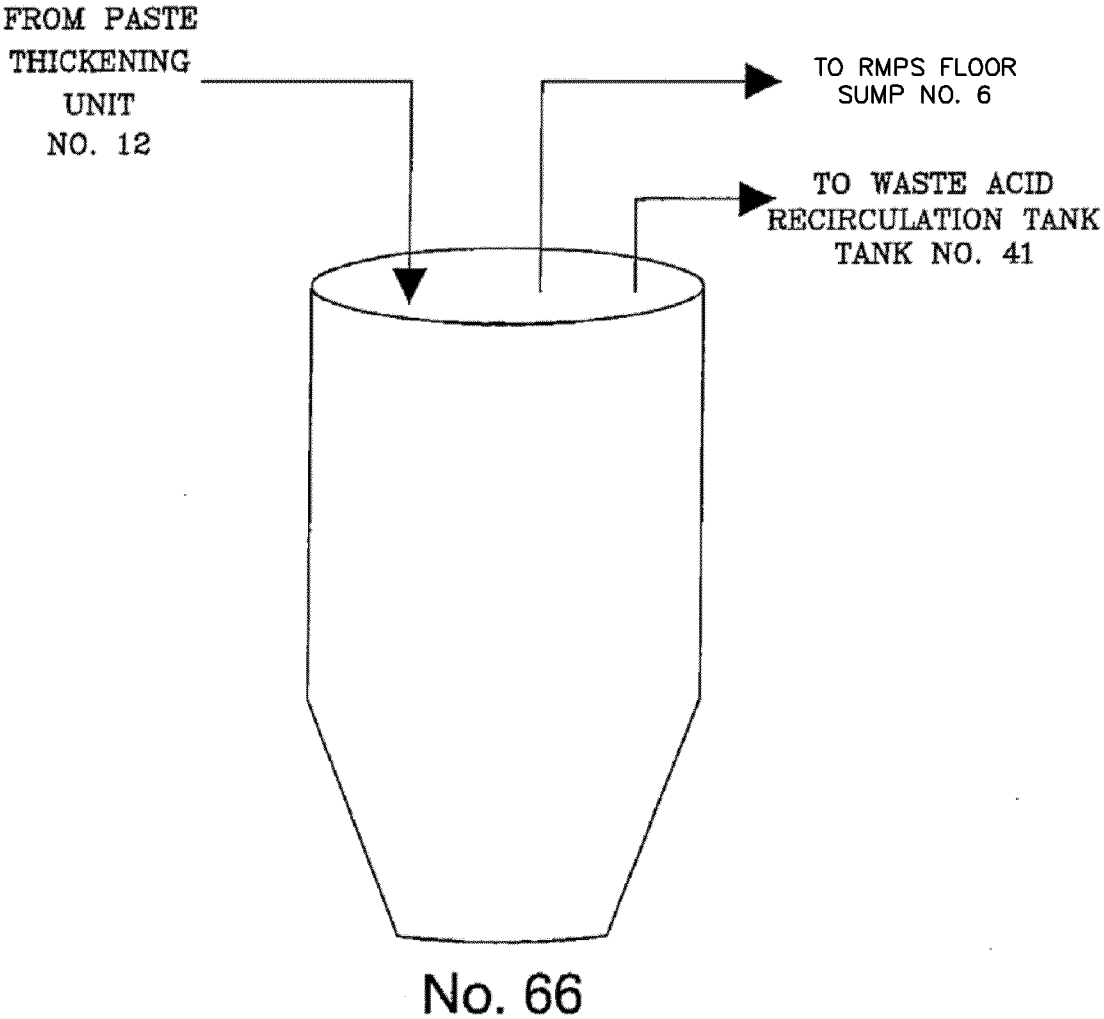

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.4 FROM PART B APPLICATION, MAY 2002.

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ACID OVERFLOW TANK A

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SCALE:	n.t.s.	ATTACHMENT 5.4
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	

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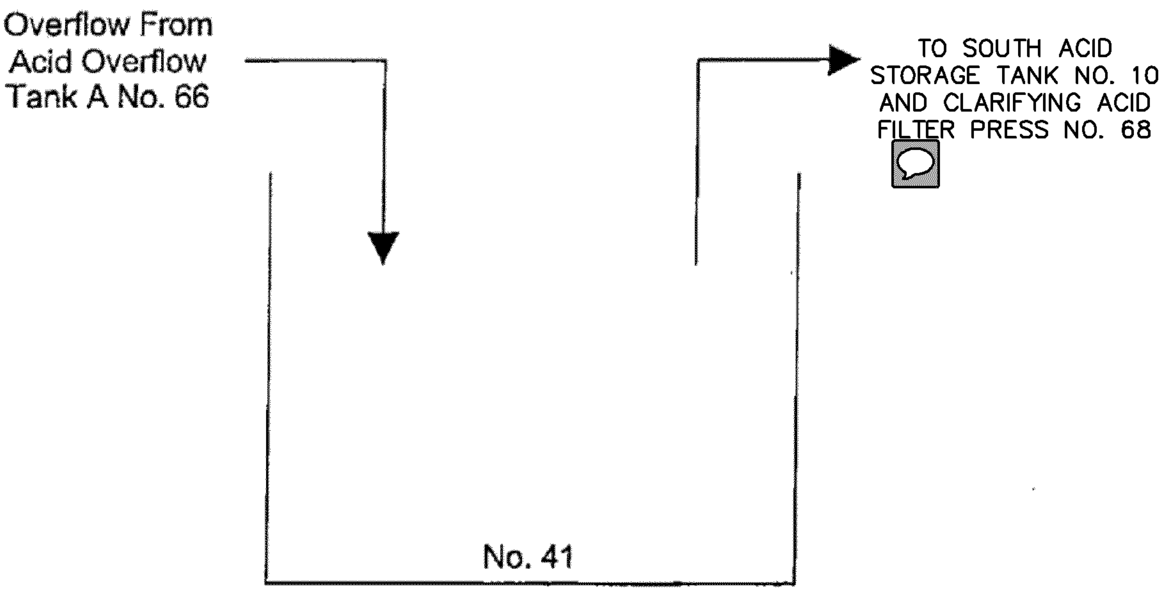

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.5 FROM PART B APPLICATION, MAY 2002.

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WASTE ACID CIRCULATION TANK

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SCALE: n.t.s.	ATTACHMENT 5.5
PROJECT NUMBER: 2013-2993-01	
DATE: 8/4/14	

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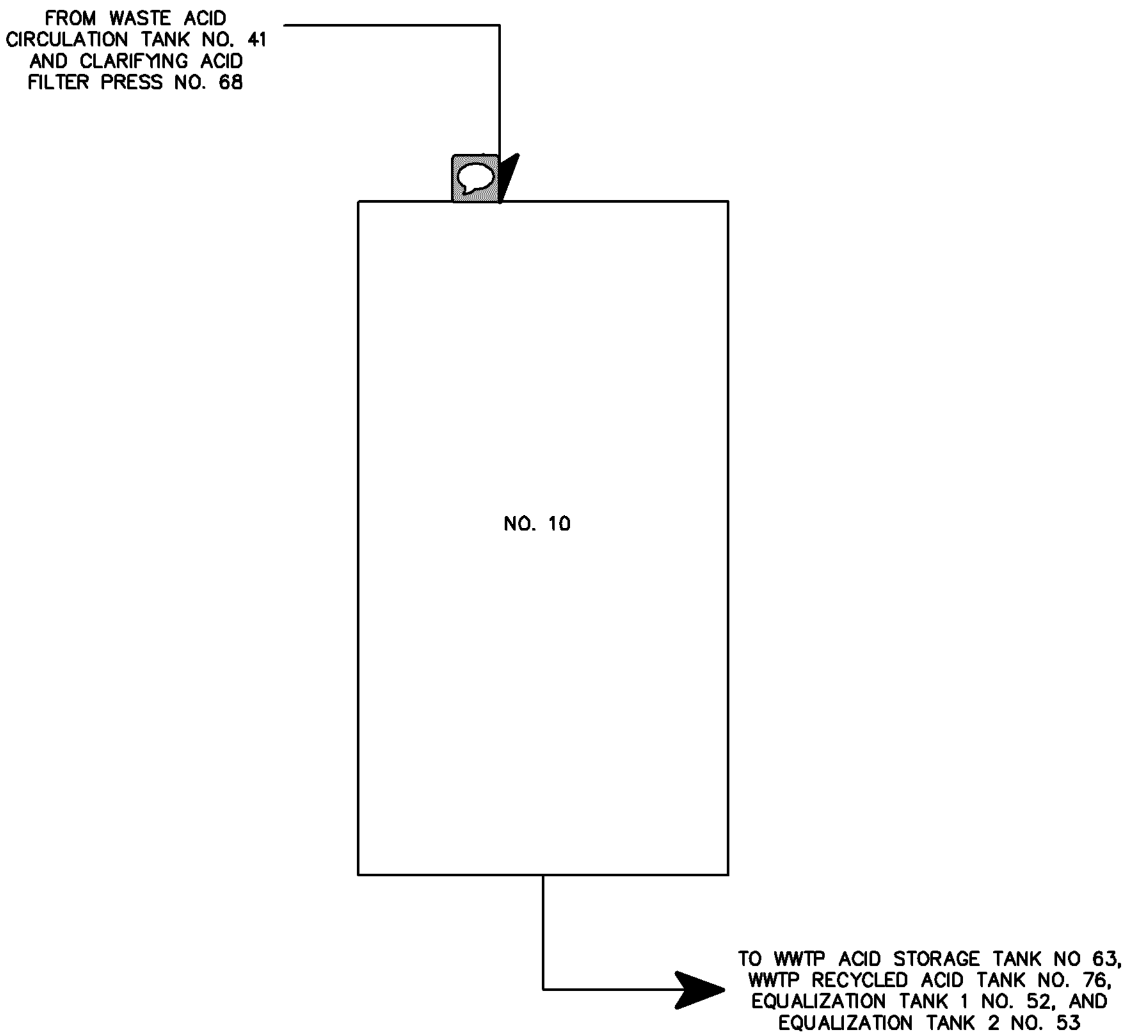

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.6 FROM PART B APPLICATION, MAY 2002.

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SOUTH ACID STORAGE TANK

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Vernon, California

SCALE: n.t.s.		ATTACHMENT 5.6
PROJECT NUMBER: 2013-2993-01		
DATE: 8/4/14		

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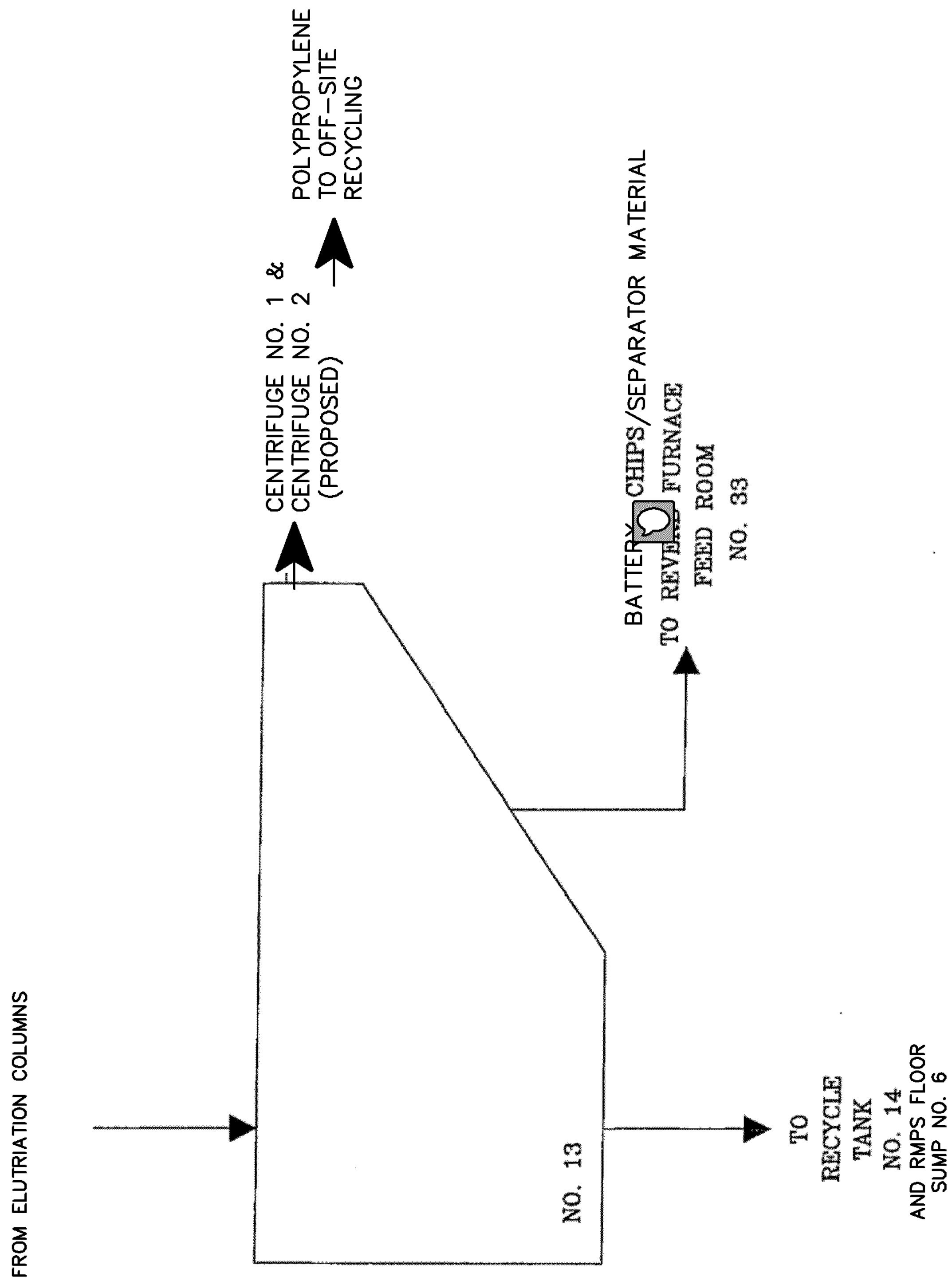

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.7 FROM PART B APPLICATION, MAY 2002.

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SINK/FLOAT SEPARATOR

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SCALE: n.t.s.		**ATTACHMENT** 5.7
PROJECT NUMBER: 2013-2993-01		
DATE: 8/4/14		

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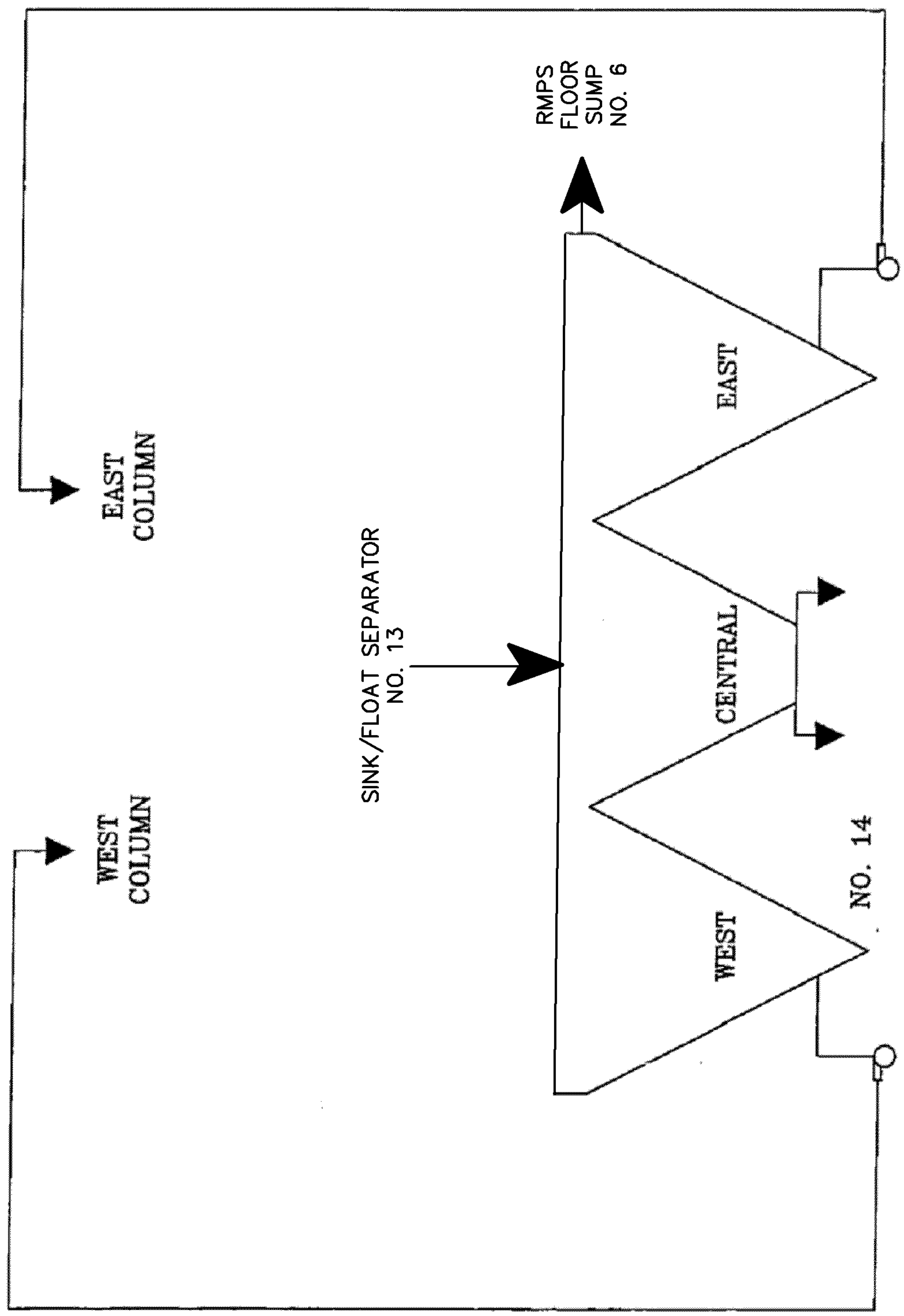

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.8 FROM PART B APPLICATION, MAY 2002.

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RECYCLE TANK

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Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.8
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	

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NO. 67

NOT IN SERVICE

ACID OVERFLOW TANK B

Exide Technologies
Vernon, California

SCALE: n.t.s.	ATTACHMENT 5.9
PROJECT NUMBER: 2013-2993-01	
DATE: 8/4/14	

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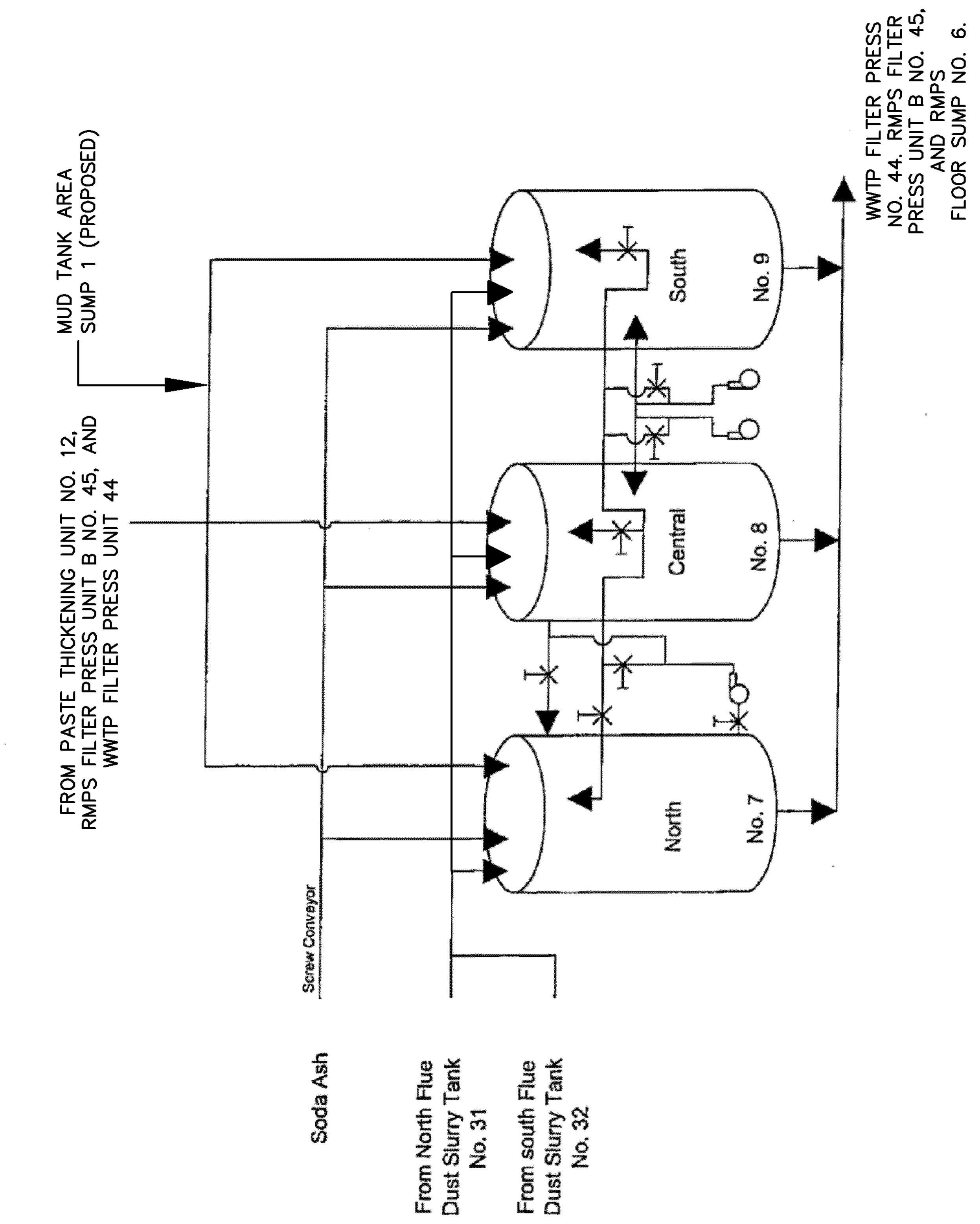

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.11 FROM PART B APPLICATION, MAY 2002.

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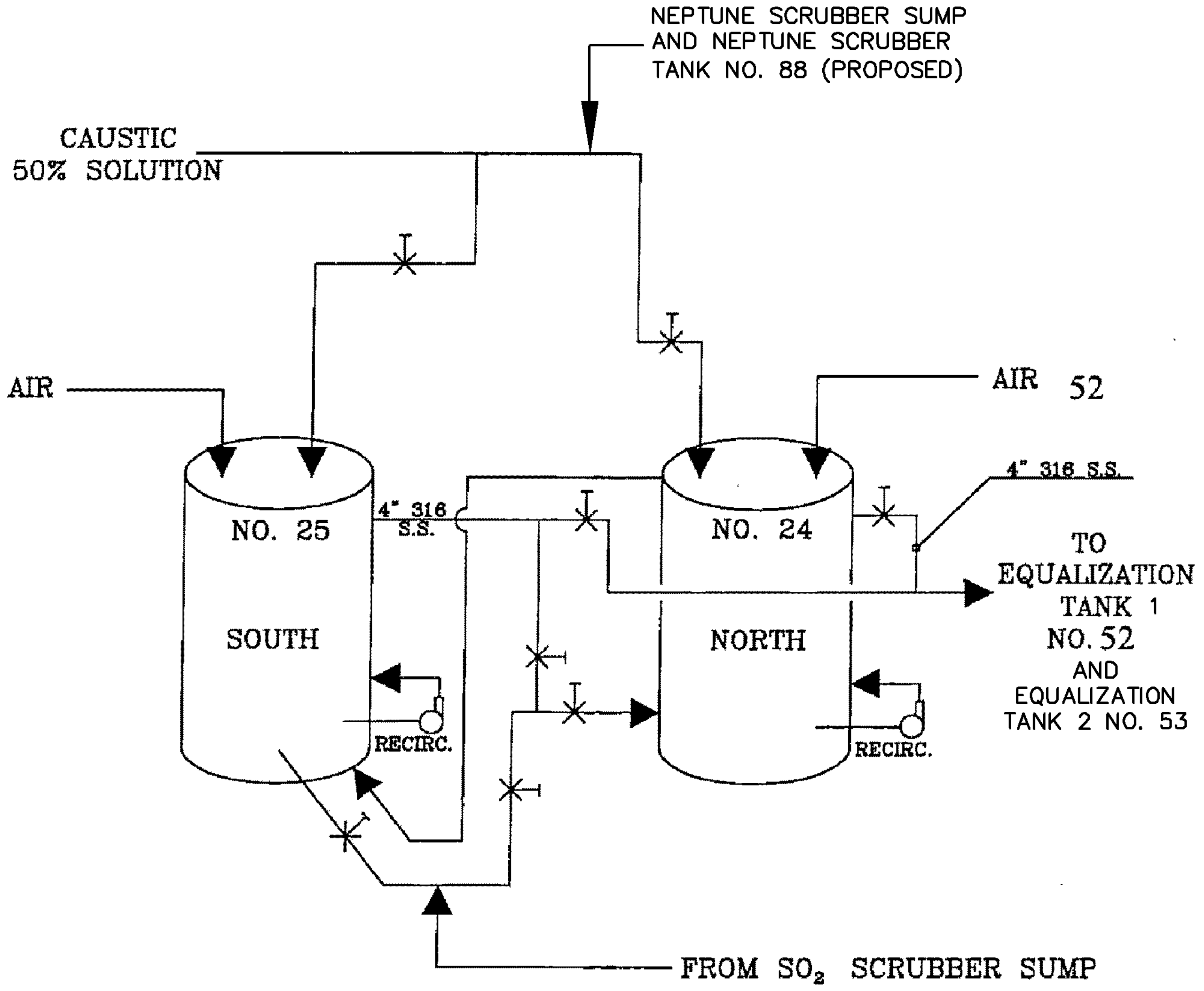
MUD TANKS

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT
PROJECT NUMBER:	2013-2993-01	5.10
DATE:	8/4/14	



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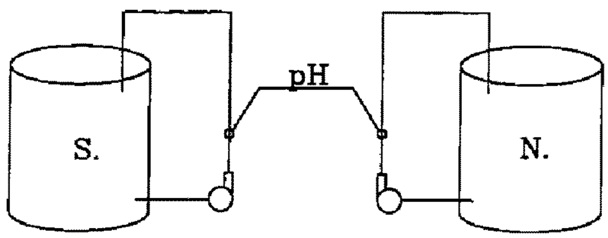

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.14 FROM PART B APPLICATION, MAY 2002.

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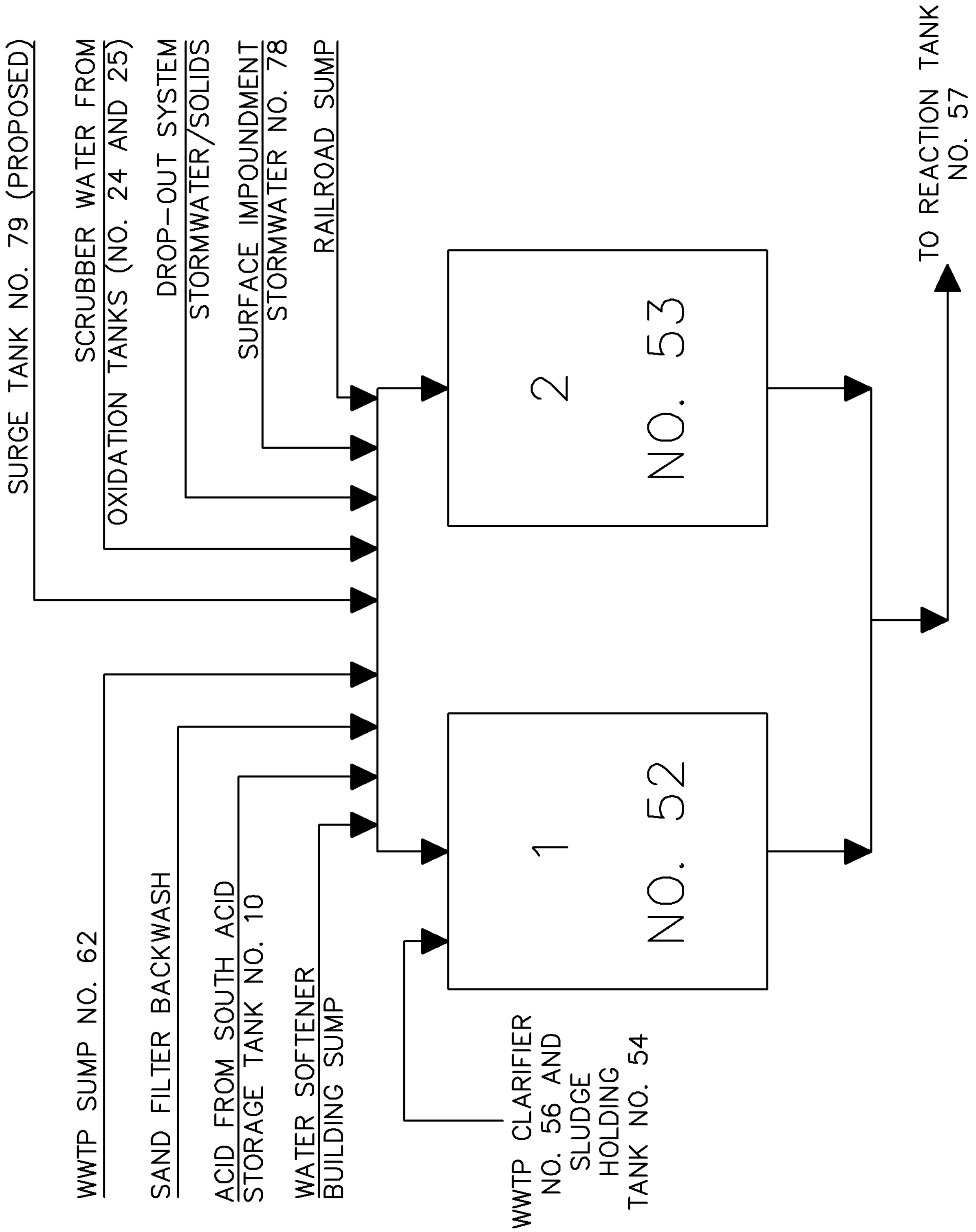
OXIDATION TANKS

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.11
PROJECT NUMBER:	2002-967-10	
DATE:	8/4/14	



NOTE:

1. ADAPTED FROM MACTEC ATTACHMENT 5.26 FROM PART B APPLICATION, JANUARY 2006.

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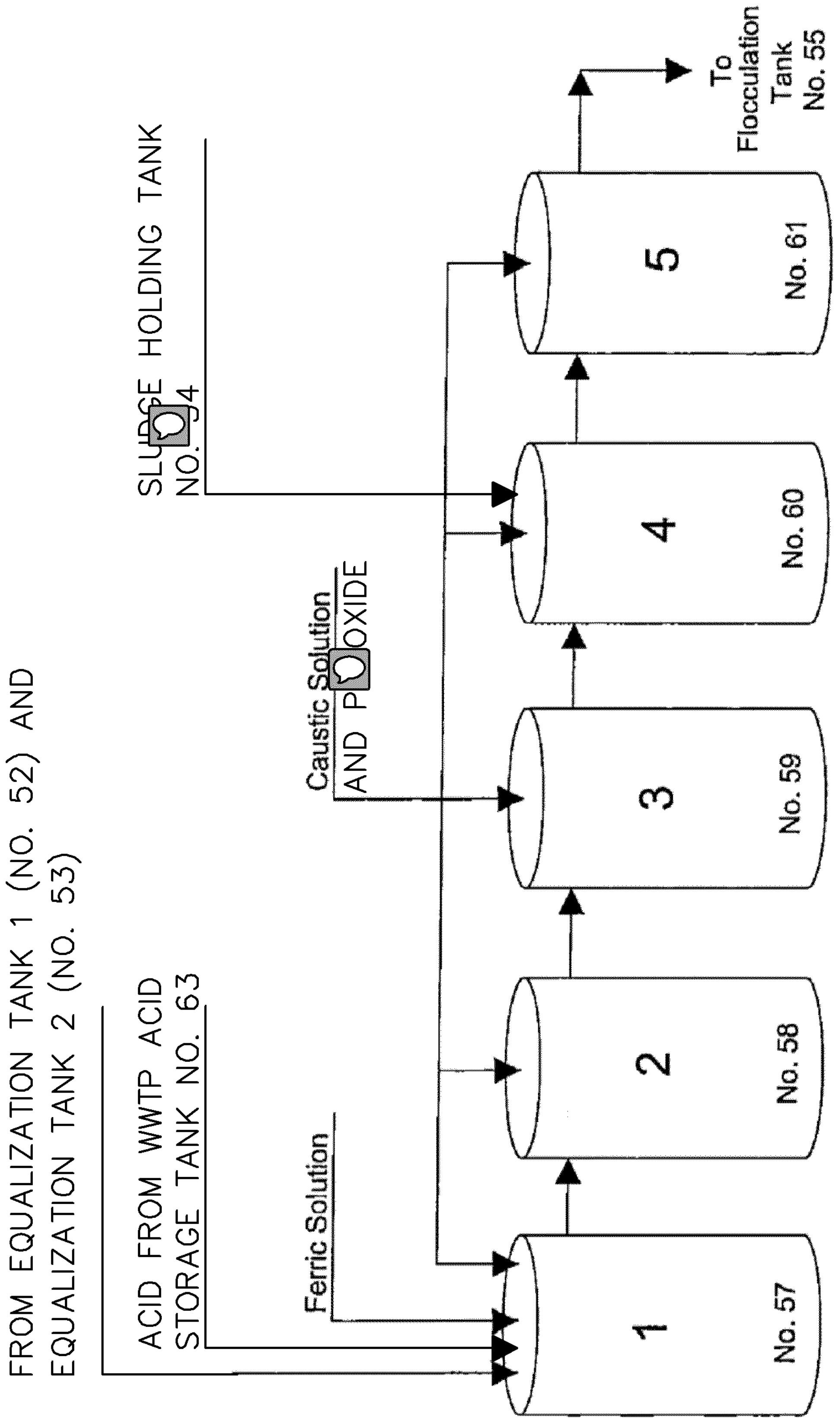
EQUALIZATION TANKS

Exide Technologies
Vernon, California

SCALE: n.t.s.		ATTACHMENT 5.12
PROJECT NUMBER: 2013-2993-01		
DATE: 8/4/14		



NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.27 FROM PART B APPLICATION, MAY 2002.

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REACTION TANKS

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.13
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	

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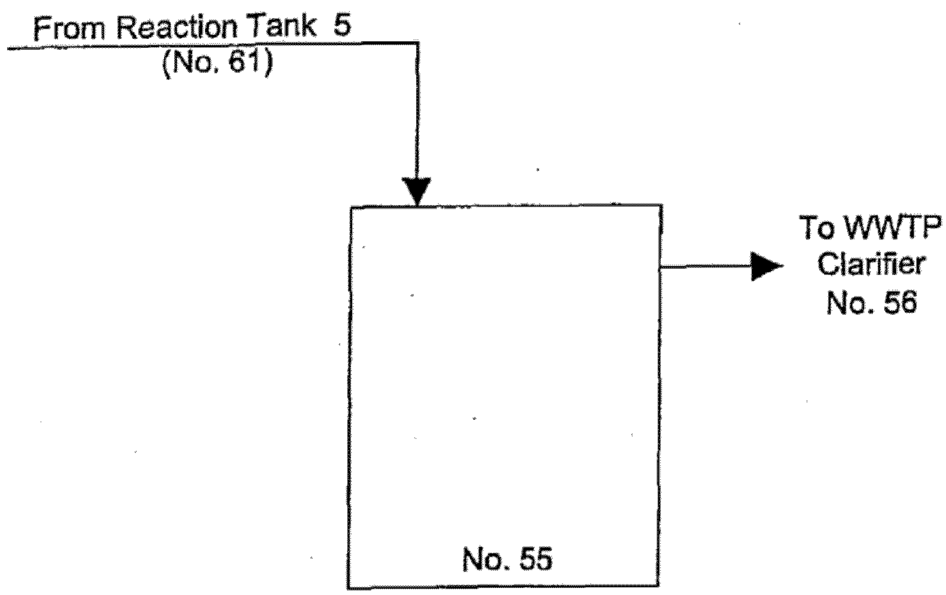

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.28 FROM PART B APPLICATION, MAY 2002.

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FLOCCULATION TANK

Exide Technologies
Vernon, California

SCALE: n.t.s.	ATTACHMENT
PROJECT NUMBER: 2013-2993-01	5.14
DATE: 8/4/14	

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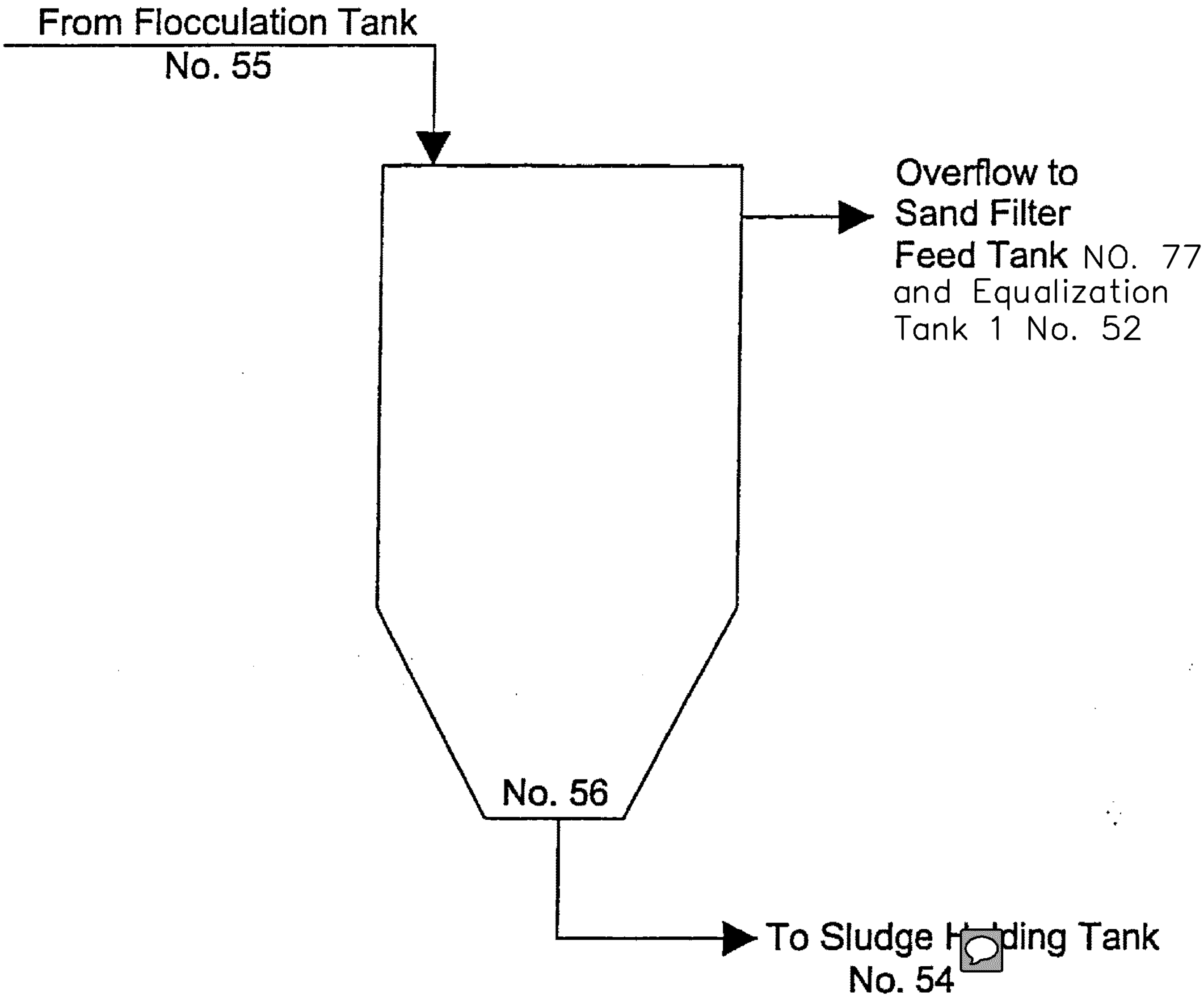

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.29 FROM PART B APPLICATION, MAY 2002.

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WWTP CLARIFIER

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT
PROJECT NUMBER:	2013-2993-01	5.15
DATE:	8/4/14	

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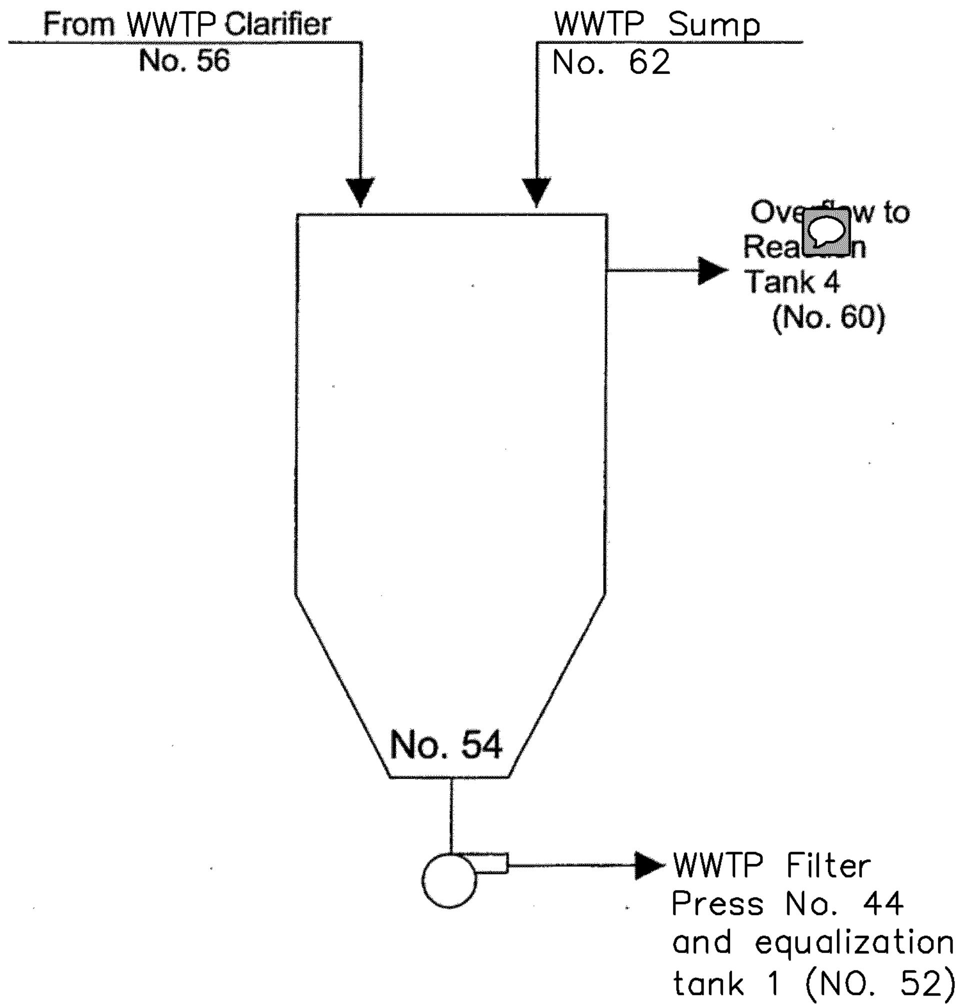

NOTE:

1. ADAPTED FROM MACTEC ATTACHMENT 5.30 FROM PART B APPLICATION, JANUARY 2006.

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SLUDGE HOLDING TANK

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Vernon, California

SCALE:	n.t.s.	ATTACHMENT
PROJECT NUMBER:	2013-2993-01	5.16
DATE:	8/4/14	

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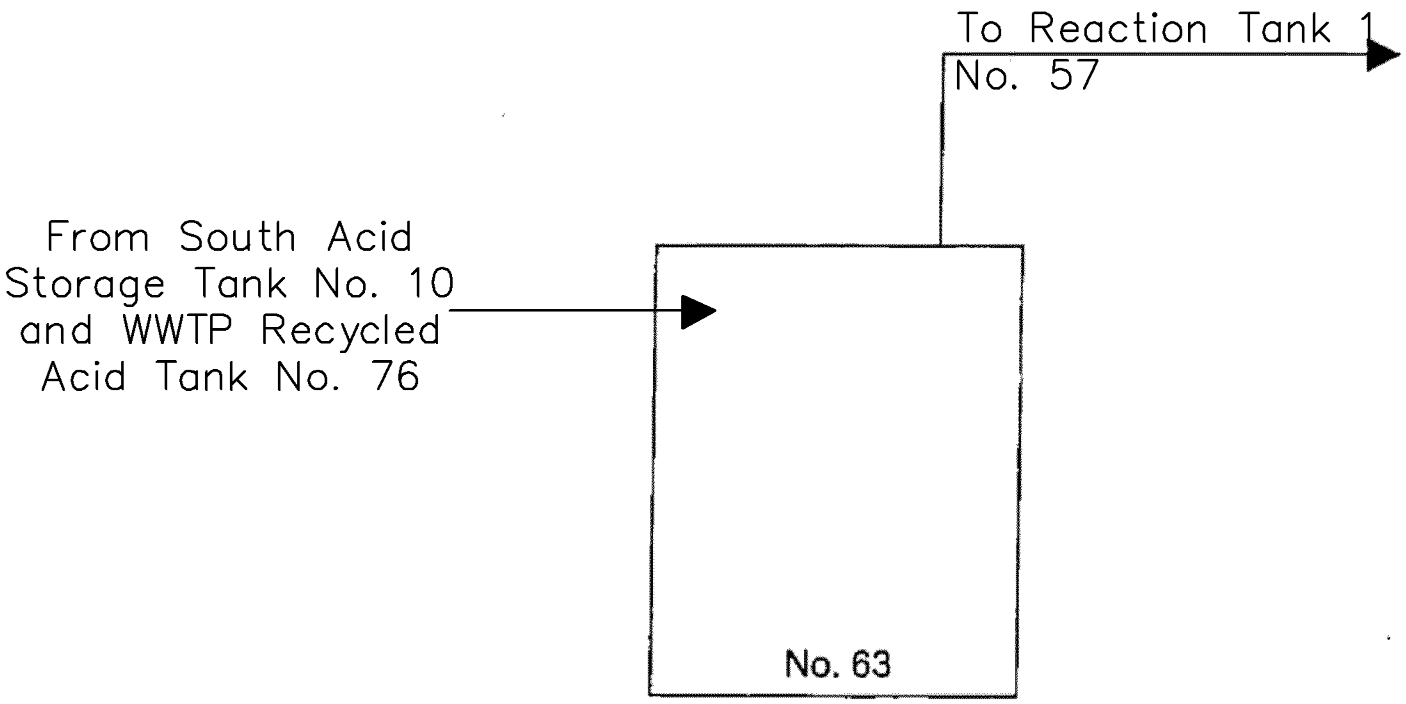

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.31 FROM PART B APPLICATION, MAY 2002.

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WWTP ACID STORAGE TANK

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Vernon, California

SCALE: n.t.s.	ATTACHMENT	5.17
PROJECT NUMBER: 2013-2993-01		
DATE: 8/4/14		

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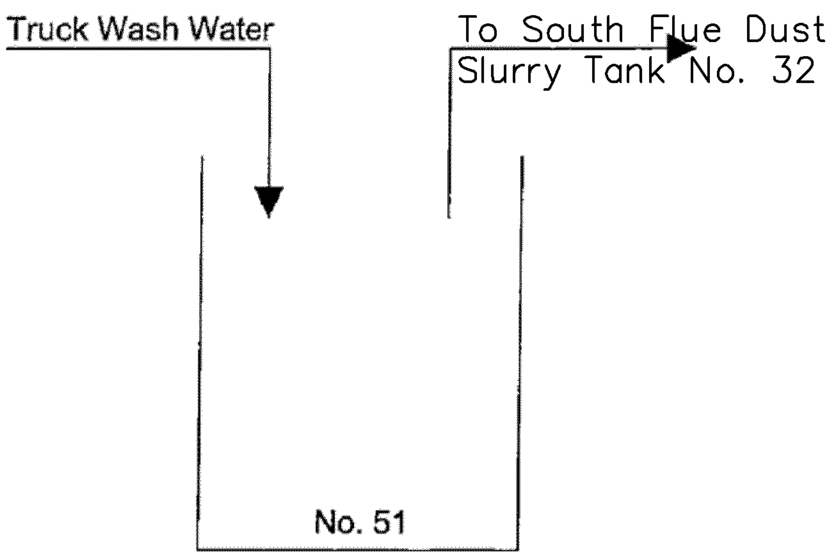

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.32 FROM PART B APPLICATION, MAY 2002.

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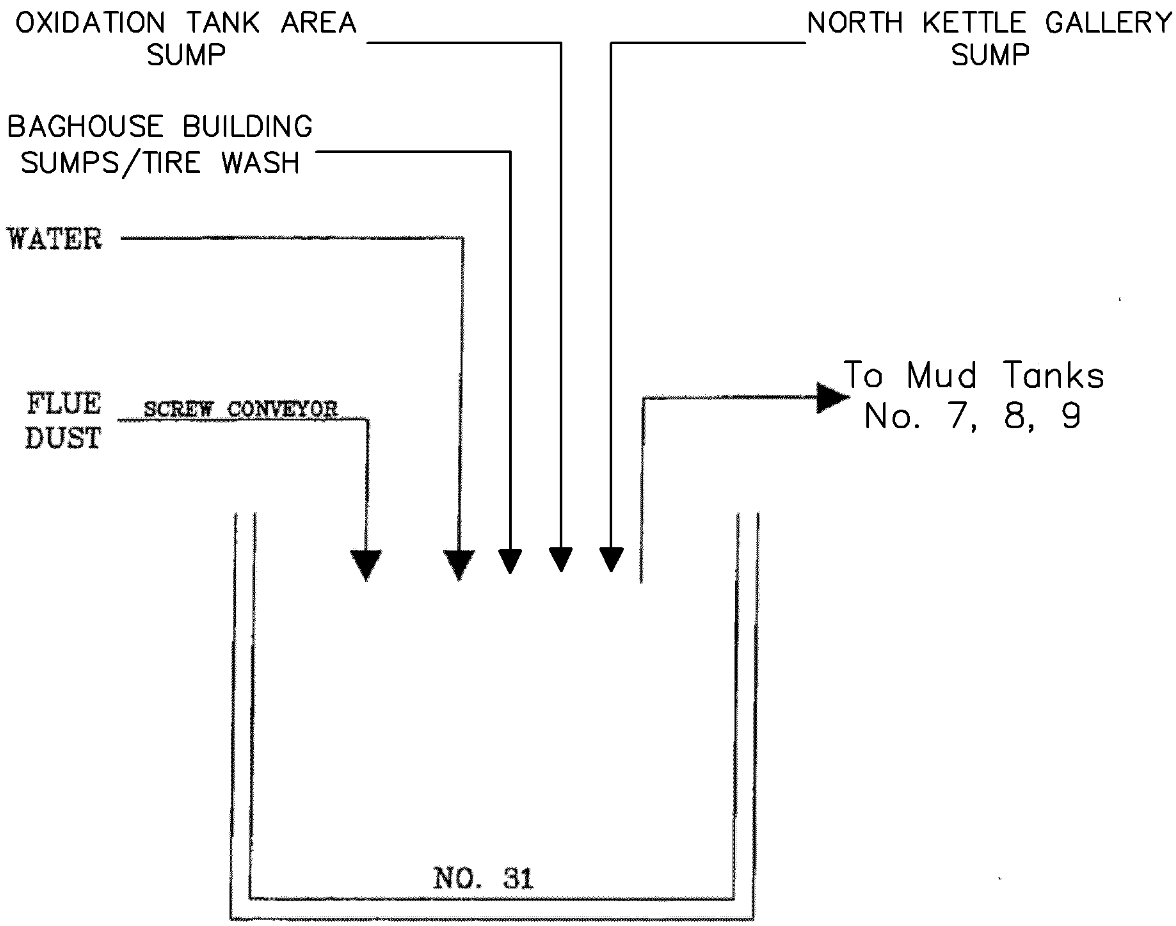
TRUCK WASH SUMP

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.18
PROJECT NUMBER: 2013-2993-01		
DATE:	8/4/14	



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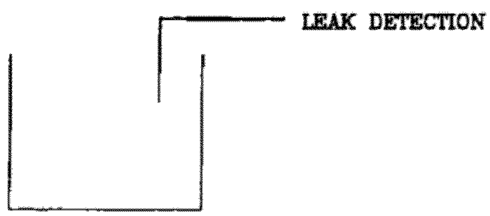

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.33 FROM PART B APPLICATION, MAY 2002.

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NORTH FLUE DUST SLURRY TANK

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.19
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	

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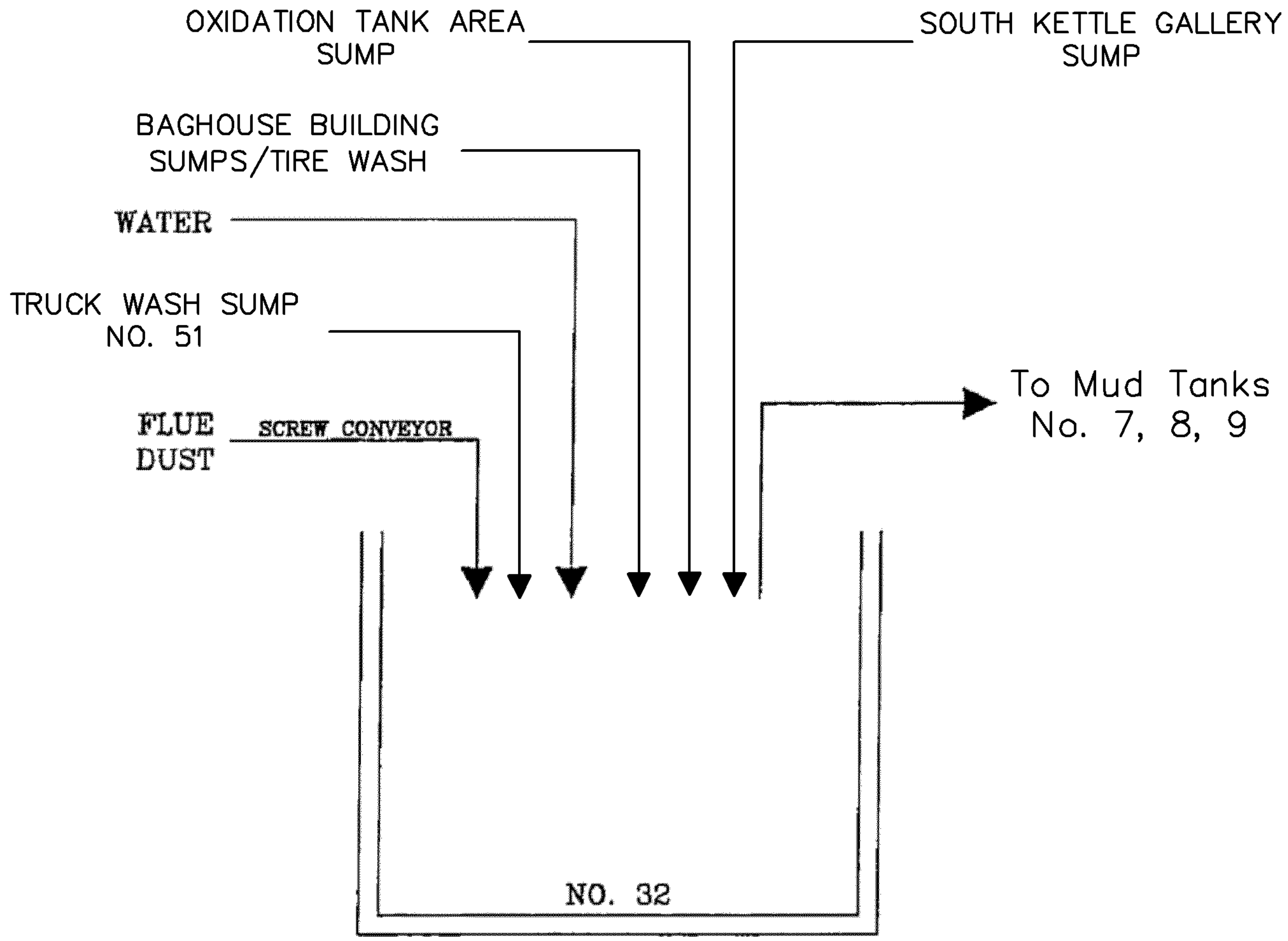

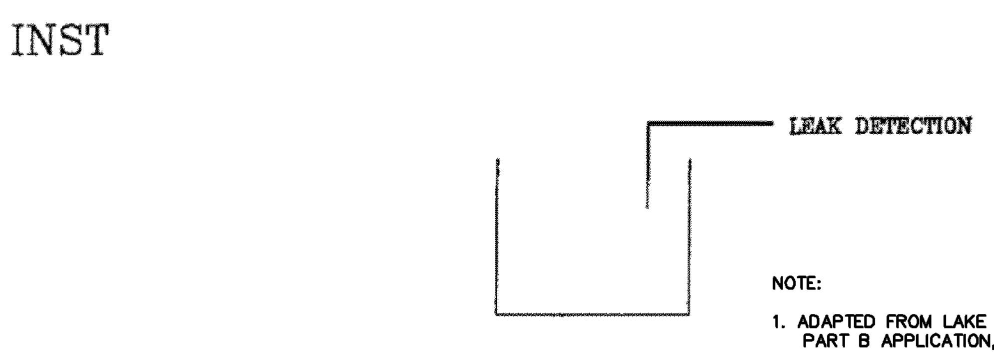

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.34 FROM PART B APPLICATION, MAY 2002.

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SOUTH FLUE DUST SLURRY TANK

Exide Technologies
Vernon, California

SCALE: n.t.s.	ATTACHMENT 5.20
PROJECT NUMBER: 2013-2993-01	
DATE: 8/4/14	

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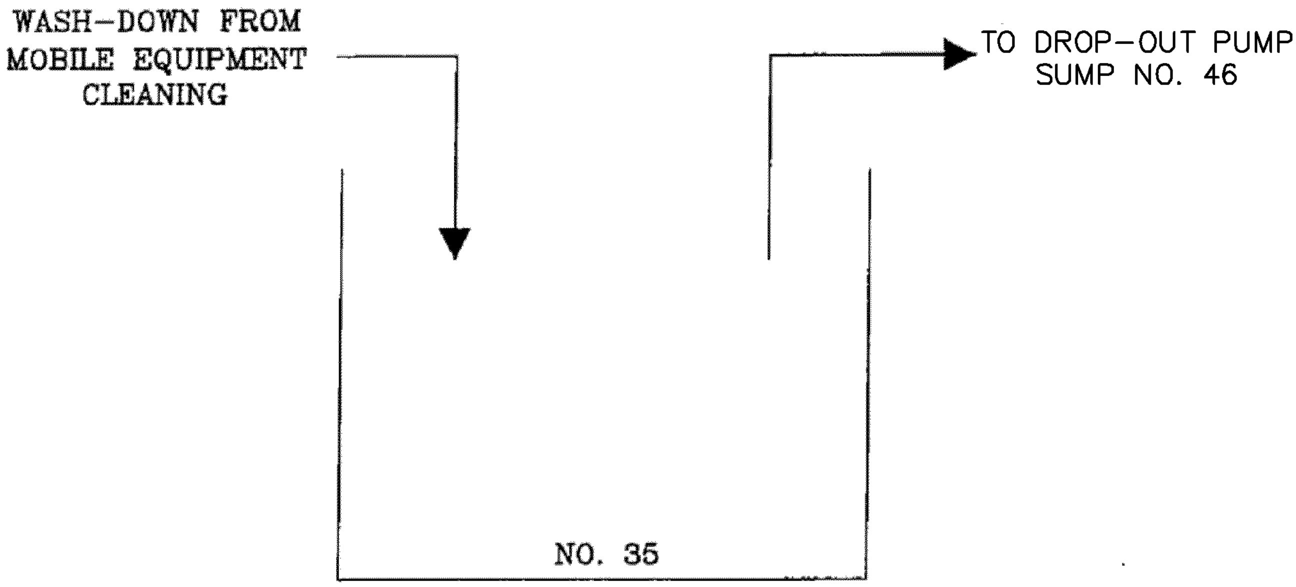

NOT IN SERVICE
TO BE CLOSED

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.35 FROM PART B APPLICATION, MAY 2002.

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MOBILE EQUIPMENT WASH SUMP

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT
PROJECT NUMBER:	2013-2993-01	5.21
DATE:	8/4/14	

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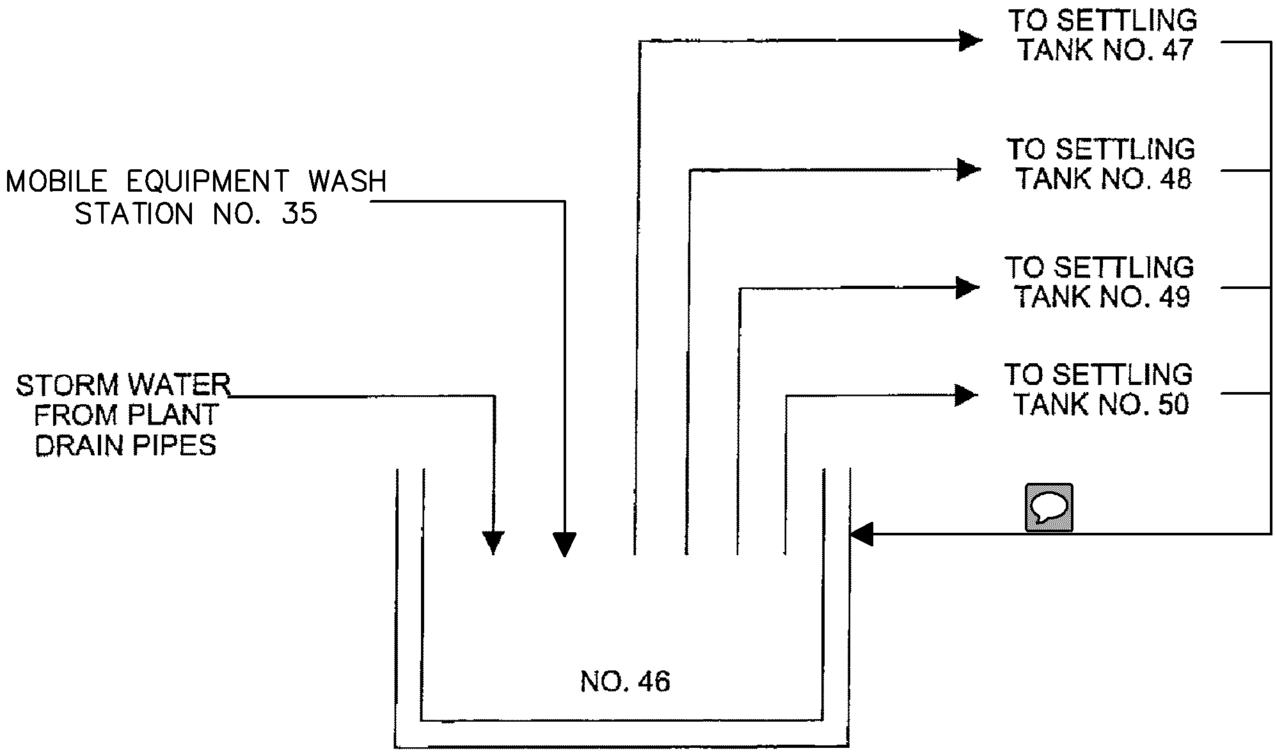

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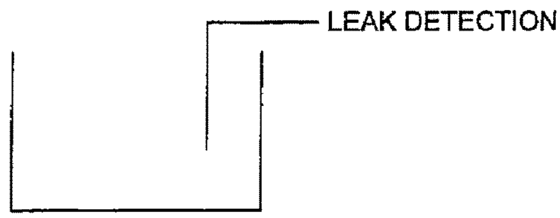

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.36 FROM PART B APPLICATION, MAY 2002.

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SCALE: n.t.s.	ATTACHMENT 5.22
PROJECT NUMBER: 2013-2993-01	
DATE: 8/4/14	

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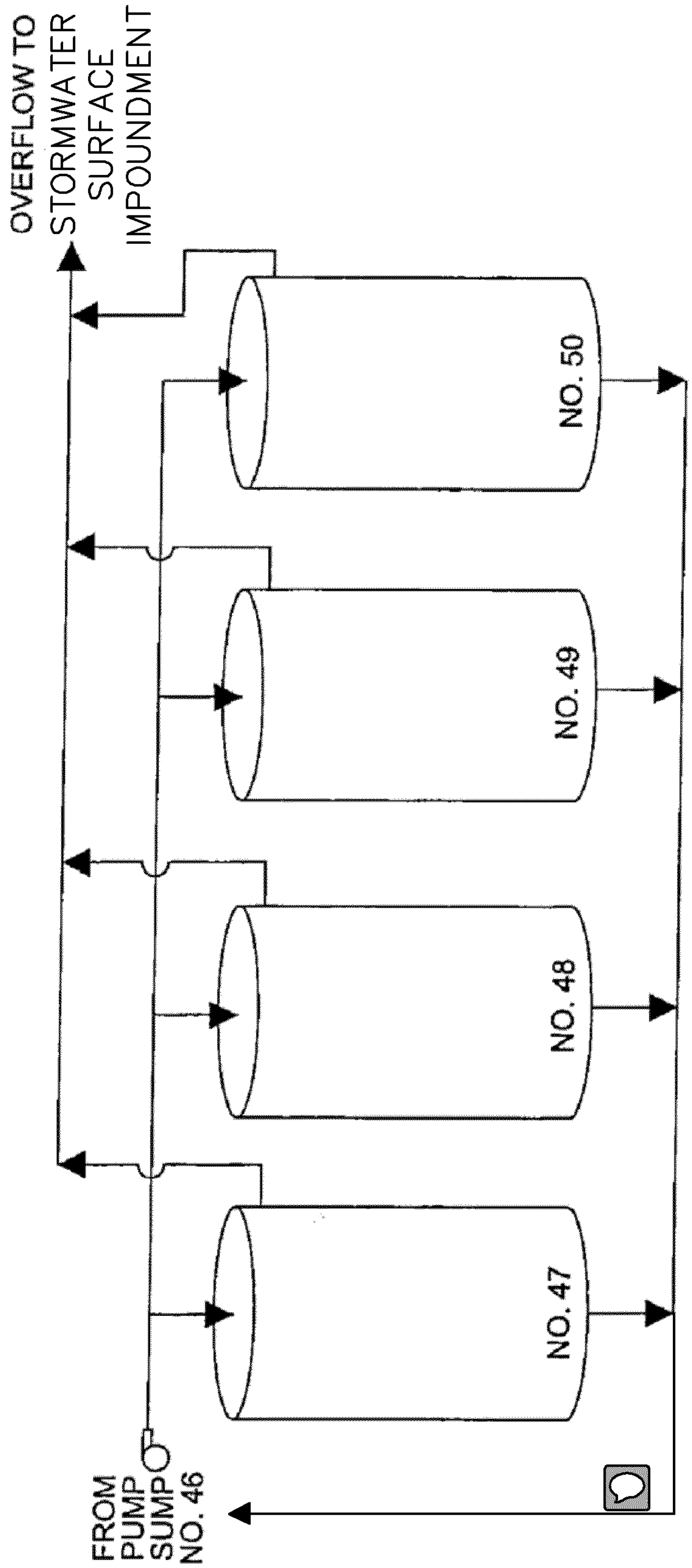

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.37 FROM PART B APPLICATION, MAY 2002.

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SETTLING TANKS

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.23
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	

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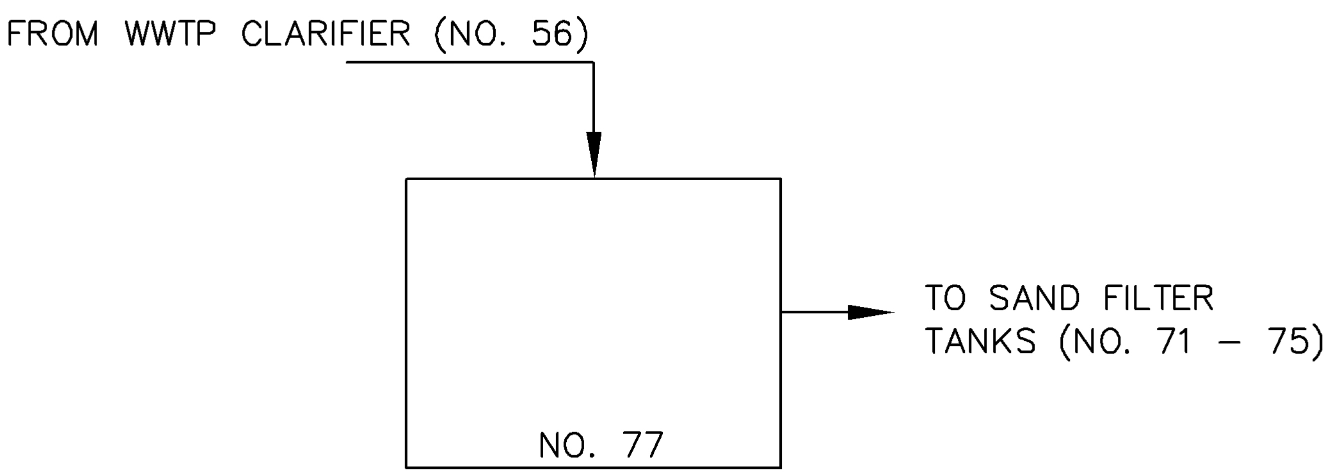

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SAND FILTER FEED TANK

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.24
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	

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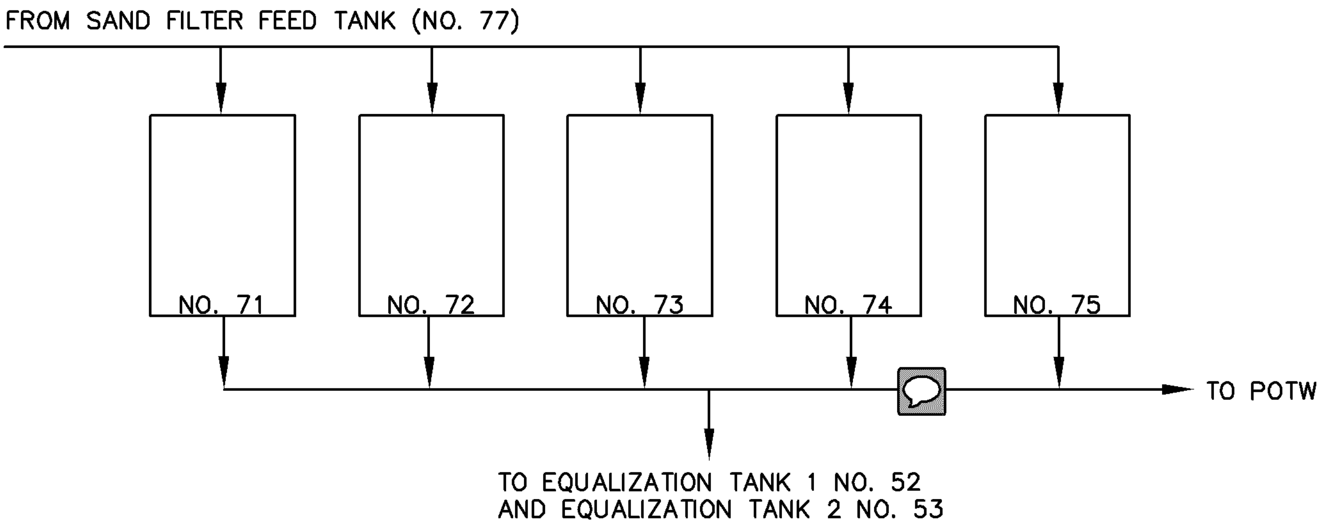

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SAND FILTER TANKS

Exide Technologies
Vernon, California

SCALE: n.t.s.	ATTACHMENT 5.25
PROJECT NUMBER: 2013-2993-01	
DATE: 8/4/14	

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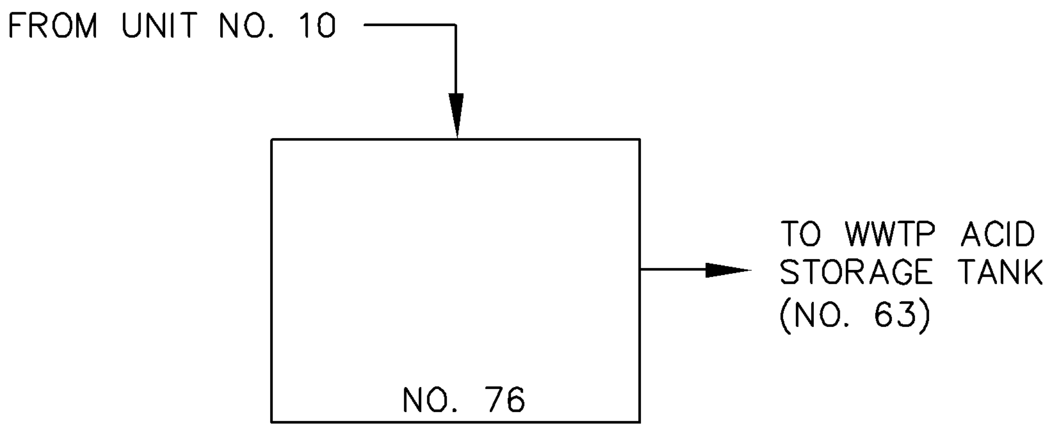

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WWTP RECYCLED ACID

Exide Technologies
Vernon, California

SCALE: n.t.s.		ATTACHMENT
PROJECT NUMBER: 2013-2993-01		5.26
DATE: 8/4/14		

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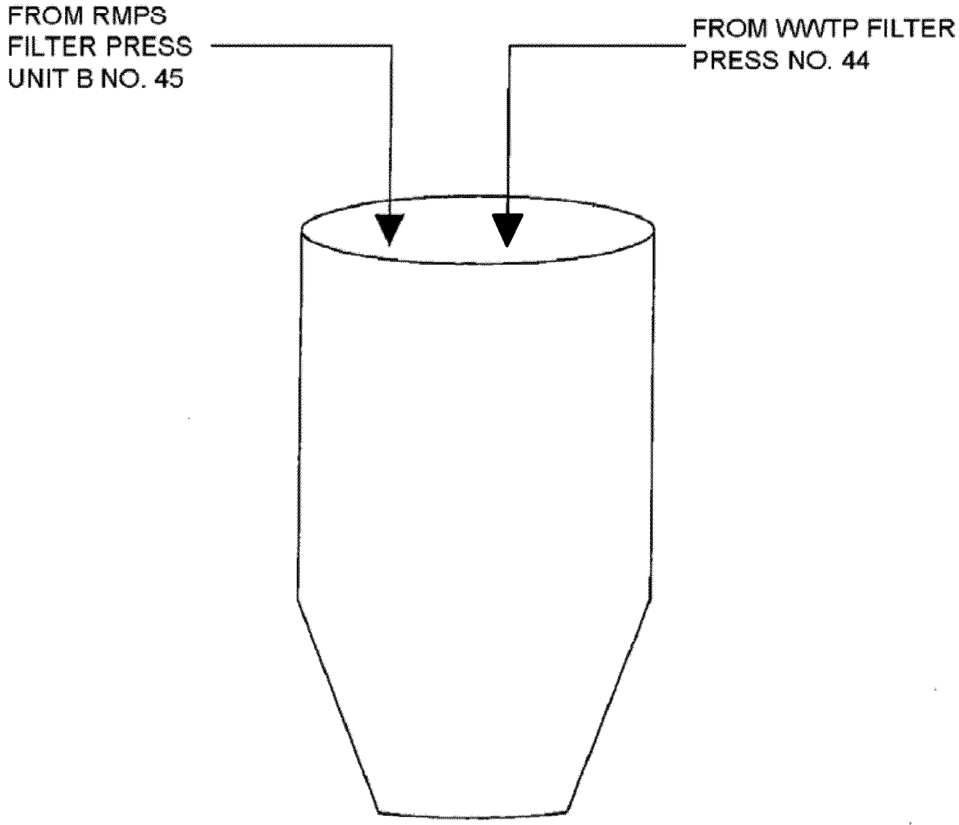

No. 79

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.4 FROM PART B APPLICATION, MAY 2002.

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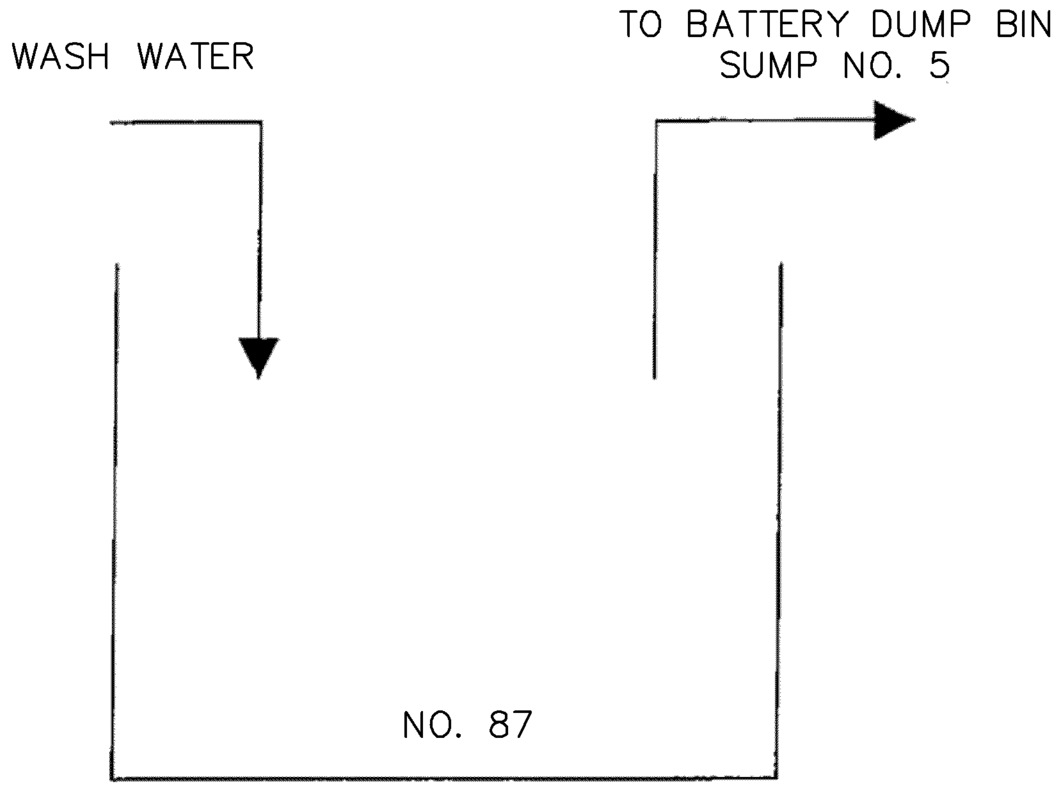
SURGE TANK

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT 5.27
PROJECT NUMBER:	2013-2993-01	
DATE:	8/4/14	



NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.35 FROM PART B APPLICATION, MAY 2002.

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WEST YARD TRUCK WASH

Exide Technologies
Vernon, California

SCALE:	n.t.s.	ATTACHMENT
PROJECT NUMBER:	2013-2993-01	5.28
DATE:	8/4/14	

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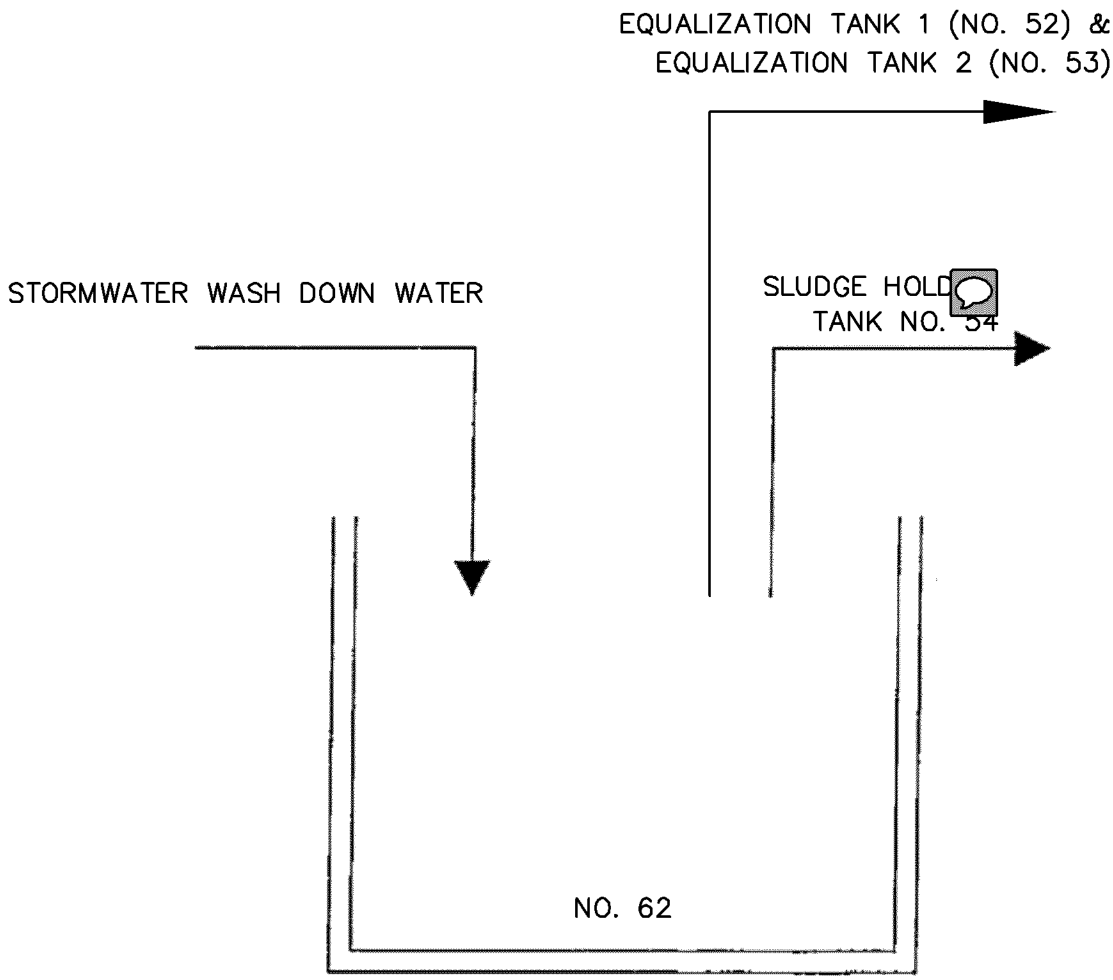

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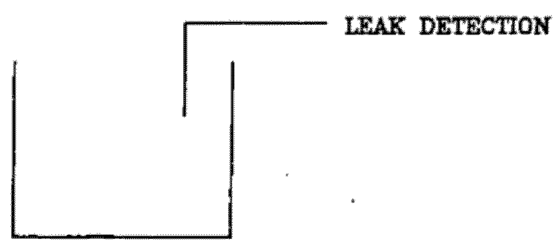

NOTE:

1. ADAPTED FROM LAKE ENGINEERING ATTACHMENT 5.1 FROM PART B APPLICATION, MAY 2002.

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WWTP SUMP

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Vernon, California

SCALE:	**n.t.s.**	**ATTACHMENT**
PROJECT NUMBER:	**2013-2993-01**	**5.29**
DATE:	**8/4/14**	

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